BOSCH INJ. PUMP TEST SPECIFICATIONS : 3.30...3.40 : (3.25...3.45) Prestroke mm Rack travel in mm : 12.00...14.00 Firing order : 1-5-3-6-2-4 Note remarks Test sheet : PER 10,0 S Edition : 14.02.92 : 04.91 Replaces Test oil : ISO-4113 Phasing : 0-60-120-180-240-300 Combination no. : 0 403 446 250 Tolerance + - ° : 0.50 (0.75) Injection pump Time to cyl. no. : 1 Pump designation: PES6MW100/320RS1194 EP type number : 0 413 406 186 BASIC SETTING Governor Governor design. : RQV300...1300MW108K 1st speed rpm: 1300 : 0 420 083 998 Governer no. Rack travel in mm : 14.30...14.40 Customer-spec. information Customer : PERKINS Del.quantity cm3/: 13.4...13.6 : 180 TI 100 s: (13.2...13.8) Engine : 134.0 1st version kW cm3 : 0.3Spread Rated speed : 2600 100 s: (0.6) TEST BENCH REQUIREMENTS 2nd speed rpm : 300.0Test oil Rack travel in mm: 6.1...6.3 Del.quantity cm3/: 1.4...1.8 inlet temp. °C : 38...42 100 s: (1.1...2.0) Overflow valve cm3 : 0.3Spread : 1 419 992 198 100 s: (0.5) Inlet press., bar: 1.50 (B) Setting of injection pump with governor Test nozzle holder assembly : 1 688 901 101 GUIDE SLEEVE TRAVEL 1st speed rpm : 1350 Opening : 10.00...10.40 travel mm : 207...210 pressure, bar rpm : 900 2nd speed : 6.40...6.60 travel mm Orifice plate rpm : 480 3rd speed diameter mm : 0,6 : 3.10...3.70 travel mm 4th speed : 300 rpm : 1.40...1.80 travel mm Test lines : 1 680 750 008 GUIDE SLEEVE POSITION Outside diameter Control-lever position x Wall thickness Degree: -1 rpm : 1380 x Length mm : 6.00x2.00x600 Speed Rack travel in mm: 15.20...17.80 (A) Injection pump setting values Insp. values in parentheses FULL LOAD DELIV. AT FULL LOAD STOP Set equal delivery quant. per values 1st version rpm : 1300 Speed

Aneroid pressure h: 900

Del.quantity

: 134.0...136.0

1000 : (132.0...138.0)

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

cm3 : 3.50 Spread 1000 : (6.00)RATED SPEED 1st version Control lever position degrees: 118...126 Testina: 1st rack travel in: 13.30 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 rpm : 1480...1510 Speed 4th rack travel in: 1600 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 70...78 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.2 Testing: Speed : 200 rpm Minimum rack trave: 7.50 : 300 Speed CDM Rack travel in mm : 6.10...6.30 CONSTANT REGULATION Speed rpm : 330...500 TORQUE CONTROL Torque control curve - 1st version rpm : 1300 1st speed Rack travel in m: 14.30...14.40 2nd speed : 800 rpm Rack travel in m: 13.10...13.30 3rd speed rpm : 500 Rack travel in m: 11.70...11.90 th speed rpm : 1000 Rack travel in m: 13.60...13.90 4th speed 5th speed rpm : 700 Rack travel in m: 12.60...12.90 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm Pressure hPa : -: 9.90...10.00 Rack travel mm

Rack travel in m: 10.40...10.50 2nd pressure hPa : 220 Rack travel in m: 10.90...11.20
3rd pressure hPa : 900
Rack travel in m: 11.70...11.90 START CUT-OUT 1/min : 240 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 900 rpm : 800 Speed Del.quantity cm3/: 126.0...129.0 1000 s: (123.5...131.5) Spread cm3 : 5.001000 s: (7.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 77.0...79.0 1000 s: (75.0...81.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.30 Speed rpm : 1340...1350 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 90.0...100.0 1000 s: (87.0...103.0) Rack travel in mm: 19.00...21.00 LOW IDLE Speed rpm : 300 Rack travel in mm : 6.10...6.30 Del.quantity cm3/: 14.0...18.0 1000 s: (11.5...20.5) Spread cm3: 3.50 1000 s: (5.50) Remarks: Start-of-delivery blocking 46.5° before start of delivery of cylinder 1

Measurement

Speed 1/min: 500

1st pressure hPa : 180

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FIA8,1D1 Edition : 31.01.92 Replaces : 12.91

Test oil : ISO-4113

: 0 403 446 284 Combination no.

Injection pump

Pump designation : PES6MW100/720RS1197

EP type number : 0 413 406 185

Governor

Governor design. : RQV325...1250MW109-1

: 0 420 083 995 Governer no.

Customer-spec. information Customer : IVECO-FIAT

: 8060.45.6090 Engine

1st version kW : 167.0 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Opening.

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10 : (3.95...4.15)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm : 14.50...14.60

Del.quantity cm3/: 10.5...10.7

100 s: (10.3...10.9)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 325.02nd speed Rack travel in mm: 7.4...7.6 Del.quantity cm3/: 2.0...2.4 100 s: (1.7...2.6)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1400 1st speed

travel mm : 10.00...10.40

rpm : 825 2nd speed

; 4.90...5.10 travel mm

3rd speed rpm : 400 : 2.90...3.50 travel mm

: 325 4th speed rpiii

travel mm : 1.50...1.90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250 Aneroid pressure h: 1200

: 105.0...107.0 Del.quantity

1000 : (103.0...109.0)

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version

Control Lever position degrees: 116...124 Testing: 1st rack travel in: 13.50 Speed rpm : 1310...1320 2nd rack travel in: 4.00 rpm : 1445...1475 Speed 4th rack travel in: 1550 Speed rom : 0.00...1.00LOW IDLE 1 Control lever position degrees: 76...84 Setting point w/out bumper spring Speed rpm : 325 Rack travel in mm : 7.5 Testing: Speed : 200 man Minimum rack trave: 9.50 rpm : 325 Speed Rack travel in mm : 7.40...7.60 TORQUE CONTROL Torque control curve - 1st version rpm : 1250 1st speed Rack travel in m: 14.50...14.60 2nd speed rpm : 1100 Rack travel in m: 14.20...14.40 3rd speed rpm : 900 Rack travel in m: 13.70...13.90 4th speed rpm : 700 Rack travel in m: 13.40...13.60 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 man Pressure hPa : -: 10.50...10.70 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : 450 Rack travel in m: 11.70...11.80 2nd pressure hPa : 700 Rack travel in m: 12.80...13.10 3rd pressure hPa : 1000 Rack travel in m: 13.40...13.60 FUEL DELIVERY CHARACTERISTICS 1st version

1000 s: (7.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 67.0...69.0 1000 s: (65.0...71.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.50 rpm : 1310...1320 Speed STARTING FUEL DELIVERY Speed : 100 rom Del.quantity cm3/: 40.0...60.0 1000 s: (37.0...63.0) LOW IDLE

Remarks:

A04

Aneroid pressure h: 1000

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : RVI 8,8 S 5 Test sheet Edition : 30.04.92 Replaces : 03.92 Test oil : ISO-4113 Combination no. : 0 403 446 300 Injection pump Pump designation : PES6MW100/320RS1171 EP type number : 0 413 406 156 Governor Governor design. : RQV300...1300MW80-7 Governer no. : 0 420 083 267 Customer-spec. information Customer : RVI Engine : MIDS 060212B 1st version kW : 117.0 Rated speed : 2600 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 033 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 101 Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,6 Test lines : 1 680 750 008 Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 30...32 A05

: 3.00...3.10 Prestroke mm : (2.95...3.15) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) BASIC SETTING 1st speed rpm: 1300 Rack travel in mm : 10.80...10.90

Del.quantity cm3/: 8.8...9.0 100 s: (8.6...9.2) Spread cm3 : 0.3100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm : 5.60...6.00 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL 1st speed rpm : 1480 : 9.60...10.00 travel mm rpm : 1350 2nd speed : 8.70...8.90 travel mm rpm : 500 3rd speed travel mm : 3.30...3.90 : 300 4th speed rpm : 1.20...1.60 travel mm FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed rpm : 1300Aneroid pressure h: 700 Del.quantity : 80.0...92.0) : 3.50 1000 : (6.00)

RATED SPEED

1st version Control lever position degrees: 125...133 Testina:

1st rack travel in: 9.80

rpm : 1395...1405 Speed

2nd rack travel in: 4.00

rpm : 1485...1515 Speed

4th rack travel in: 1700

Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever

position degrees: 66...74

Setting point w/out bumper spring

rom : 300

Rack travel in mm: 5.0

Testing:

Speed rom : 200 Minimum rack trave: 7.60

rpm : 300 Speed

Rack travel in mm : 5.60...6.00

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm

hPa : 700 Pressure

Rack travel mm : 10.80...10.90

Measurement

1/min : 500Speed

1st pressure hPa : -

Rack travel in m: 8.80...9.20

2nd pressure hPa : 180 Rack travel in m: 10.35...10.45

3rd pressure hPa : 120

Rack travel in m: 9.70...9.90

START CUT-OUT

1/min: 230 (250) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

: 900 Speed rpm

Del.quantity cm3/: 86.0...89.0

1000 s: (83.5...91.5)

Spread cm3 : 5.00

1000 s: (7.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 49.0...51.0 1000 s: (47.0...53.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.80

rpm : 1395...1405 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 90.0...110.0 1000 s: (87.0...113.0) Rack travel in mm: 19.50...21.00

LOW IDLE

rpm : 300 Speed

Rack travel in mm : 5.60...6.00

Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

Start-of-delivery mark mode with prestroke 3.00...3.10 mm at barrel 1

A06

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : CUM : 30.04.92 Edition Replaces Test oil : ISO-4113 Combination no. : 0 403 466 117JD Injection pump Pump designation : PES6MW100/120RS1178 EP type number : 0 413 406 160 Governor Governor design. : RSV350...1250Mw2A332 Governer no. : 0 420 085 152 Cust. part no. : 3913734 Customer-spec. information Customer : CDC : 6 CTA Engine 1st version kW : 186.0 : 2500 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 017 Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,6 Test lines : 1 680 750 014 Outside diameter

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

BEGINNING OF DELIVERY Test pressure, bar: 30...32 : 3.45...3.55 Prestroke mm : (3.40...3.60) Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order Phasing : 0-60-120-180-240-300 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ Time to cyl. no. : 1 BASIC SETTING 1st speed rpm : 1050Rack travel in mm : 14.00...14.10 Del.quantity cm3/: 14.2...14.4 100 s: (14.0...14.6) Spread cm3 : 0.3100 s: (0.6) rpm : 350.0 2nd speed Rack travel in mm: 6.7...6.9 Del.quantity cm3/: 2.3...2.7 100 s: (2.1...2.9) cm3 : 0.3Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...1.00 Governor spring pre-tension Click setting x : 5.00FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1050 Speed Aneroid pressure h: 900 : 142.5...144.5 Del.quantity 1000 : (140.5...146.5) : 3.50 cm3 Spread 1000 : (6.00) RATED SPEED 1st version

x Wall thickness

per values ____

x Length mm

Control lever

position degrees: 50...58

Setting point:

Speed : 800 rpm Rack travel in mm: 0.6

Testing:

1st rack travel in: 13.10

rpm : 1115...1125 Speed

2nd rack travel in: 4.00

rpm : 1255...1285 Speed

3rd rack travel in: 4.00

Speed rpm : 1265...1295 4th rack travel in: 1400

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 29...37

Setting point w/out bumper spring

rpm : 350

Rack travel in mm: 6.3

Testing:

Speed rpm : 100

Minimum rack trave: 19.00 rpm : 350 Speed

Rack travel in mm : 6.20...6.40

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed : 500 non hPa : 900 Pressure

Rack travel mm : 14.00...14.10

Measurement

Speed $1/\min : 500$

1st pressure hPa : -

Rack travel in m: 10.70...10.90

2nd pressure hPa : 215

Rack travel in m: 11.60...11.80 3rd pressure hPa : 390

Rack travel in m: 13.00...13.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/: 92.5...96.5 1000 s: (90.5...98.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.10

Speed rpm : 1115...1125

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 160.0...180.0

1000 s: (155.0...185.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350 Rack travel in mm : 6.70...6.90

Del.quantity cm3/: 23.5...27.5

1000 s: (21.5...29.5) cm3 : 3.50

Spread

1000 s: (5.50)

Remarks:

Start-of-delivery mark at 14° angular displacement of the cam after start of

delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet Edition : 28.02.92 Replaces Test oil : ISO-4113 Combination no. : 0 403 474 023 Injection pump Pump designation : PES4MW100/720RS1212 EP type number : 0 413 404 114 Governor Governor design. : RSV350...1300MWOA329 -13: 0 420 085 191 Governer no. Customer-spec. information Customer : MB-NFZ : OM 364 LA Engine 1st version kW : 100.0 Rated speed : 2600 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 681 343 009 Opening pressure, bar : 172...175 Test lines : 1 680 750 089 Outside diameter x Wall thickness

pressure, bar : 172...175

Test lines : 1 680 750 089

Outside diameter
x Wall thickness
x Length mm : 8.00x2.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY
Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80

: (3.65...3.85)

Rack travel in mm : 9.00...12.00 Firing order : 1-3-4-2 Phasing : 0-90-180-270 Tolerance + - * : 0.50 (0.75) BASIC SETTING 1st speed rpm: 1280 Rack travel in mm : 13.20...13.30 Del.quantity cm3/: 10.1...10.3 100 s: (9.9...10.5) Spread cm3 : 0.3100 s: (0.6) 2nd speed rpm : 350.0Rack travel in mm: 6.5...6.8 Del.quantity cm3/: 1.0...1.4 100 s: (0.7...1.6) Spread cm3 : 0.3100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 Speed rpm : 800 Rack travel in mm : 0.30...1.00 Governor spring pre-tension Click setting x : 4.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1280 Aneroid pressure h: 700 Del.quantity : 101.0...105.0) : 3.50 Spread cm3 1000 : (6.00) RATED SPEED 1st version Control lever

1st version
Control lever
position degrees: 114...122
Setting point:
Speed rpm : 800

Speed rpm : 800 Rack travel in mm : 0.6

Testing:

1st rack travel in: 12.20 rpm : 1320...1330 Speed 2nd rack travel in: 4.00 : 1385...1415 Speed man 4th rack travel in: 1450 Speed rpm : 0.30...1.70 LOW IDLE 1 Control lever position degrees: 82...90 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 6.6 Testing: : 100 Speed rpm Minimum rack trave: 19.00 rpm : 350 Rack travel in mm : 6.50...6.80 SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm Pressure hPa : -: 10.20...10.30 Rack travel mm Measurement Speed $1/\min : 500$ 1st pressure hPa : 200 Rack travel in m: 10.90...11.10 2nd pressure hPa : 400 Rack travel in m: 12.30...12.50 3rd pressure hPa : 700 Rack travel in m: 13.20...13.30 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 Speed rpm : 600 Del.quantity cm3/: 86.0...89.0 1000 s: (83.5...91.5) cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 36.0...38.0 1000 s: (34.0...40.0)

1st version 1mm rack travel less than full load rack tr: 12.20 Speed rpm : 1320...1330 STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 85.0...95.0 1000 s: (82.0...98.0) LOW IDLE Speed : 350 rpm Rack travel in mm : 6.50...6.80 Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) cm3 : 3.50 1000 s: (5.50) Spread Remarks: Test hydr. locking device for starting with 500...1000 hPa air pressure.

BREAKAWAY

A10

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet

Edition : 20.03.92

Replaces

: ISO-4113 Test oil

Combination no. : 0 403 476 117

Injection pump

Pump designation : PES6MW100/720RS1131-

EP type number : 0 413 406 165

Governor

Governor design. : RSV750...1200My0A329

Governer no. : 0 420 085 193

Customer-spec. information Customer : MB-NFZ

Engine : 0M366LA Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening 1

pressure, bar : 172...175

Test lines : 1 680 750 089

Outside diameter x Wall thickness

: 8.00x2.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.60...3.70

: (3.55...3.75)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1180

Rack travel in mm : 13.20...13.30

Del.quantity cm3/: 10.6...10.8

100 s: (10.4...11.0)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 750.0 Rack travel in mm: 5.8...6.3 Del.quantity cm3/: 1.0...1.4

100 s: (0.7...1.6)

cm3 : 0.3 Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 6.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1180 Speed Aneroid pressure h: 1000

: 106.0...108.0 Del.quantity

1000 : (104.0...110.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 82...90

Setting point:

rpm Rack travel in mm: 0.6

Testing:

1st rack travel in: 12.20

rpm : 1230...1235 * Speed

2nd rack travel in: 4.00

: 1310...1318 Speed rpm

4th rack travel in: 1500

Speed rpm : 0.30...1.70

LOW IDLE 1 Control lever

position degrees: 70...78

Setting point w/out bumper spring

Speed rpm : 750 Rack travel in mm: 6.0

Testina:

Speed rpm : 100 Minimum rack trave: 19.00 rpm : 750 Speed

Rack travel in mm : 5.80...6.30

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

Aneroid/Altitude Compensator Test

1st version Setting

Speed : 500 rpm

Pressure hPa : -

: 10.10...10.20 Rack travel mm

Measurement

Speed 1/min: 500

1st pressure hPa : 350

Rack travel in m: 11.30...11.40

2nd pressure hPa : 500

Rack travel in m: 12.40...12.70

3rd pressure hPa : 1000

Rack travel in m: 13.20...13.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000 Speed rpm : 600

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cn5/: 35.0...37.0

1000 s: (33.0...39.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.20

A12

: 1230...1235 Speed rpm

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 100.0...110.0

1000 s: (97.0...113.0)

LOW IDLE

rpm : 750

Rack travel in mm : 5.80...6.30 Del.quantity cm3/: 10.0...14.0

1000 s: (7.5...16.5) cm3 : 3.50 1000 s: (5.50)

Spread

Remarks:

Test hydr. locking device for starting with 800...1200 hPa air pressure.

* Read off speed set under 1. Add 80...88 min-1 to this speed. The control-rod travel under 2. must be attained with the calculated speed profile.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

Test sheet Edition

: 30.04.92

Replaces Test oil

: ISO-4113

Combination no.

: 0 403 476 118

Injection pump

Pump designation : PES6MW100/720RS1217-

EP type number

: 0 413 406 214

Governor

Governor design. : RSV325...1200MWDA349

Governer no.

: 0 420 085 194

Customer-spec. information Customer

: MAM

Engine

: TD 226 B 6

1st version kW Rated speed

: 118.0 : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening |

pressure, bar

: 172...175

Test Lines

: 1 680 750 014

Outside diameter

x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 30...32

Prestroke mm

: 4.00...4.10

: (3.95...4.15)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - * : 0.50 (0.75)

BASIC SETTING

1st speed rom: 1175

Rack travel in mm : 9.20...9.30

Del.quantity cm3/: 9.6...9.8

100 s: (9.4...10.0)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 325.0 2nd speed Rack travel in mm: 6.5...6.7 Del.quantity cm3/: 0.8...1.2

100 s: (0.5...1.4)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1175 Speed

Aneroid pressure h: 750

Del.quantity : 96.0...98.0 1000 : (94.0...100.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version Control Lever

position degrees: 90...98

Setting point:

Speed : 800 rpm Rack travel in mm: 0.6

Testing:

1st rack travel in: 8.20

Speed rpm : 1220...1230

2nd rack travel in: 4.00

rpm : 1240...1270 Speed

3rd rack travel in: 4.00

Speed rpm : 1265...1295

4th rack travel in: 1350

Speed rpm : 0.30...1.70

LOW IDLE 1 Control Lever

position degrees: 65...73

Setting point w/out bumper spring

rpm : 325 Rack travel in mm: 6.1

Testina:

rpm : 100 Speed Minimum rack trave: 19.00 rpm : 325 Speed

Rack travel in mm : 6.00...6.20

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1175

Rack travel in m: 9.20...9.30

rpm : 750 2nd speed

Rack travel in m: 10.00...10.10

3rd speed rpm : 1025

Rack travel in m: 9.50...9.80

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed LDW

hPa : -Pressure

: 8.50...8.60 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : 270

Rack travel in m: 9.10...9.20 2nd pressure hPa : 350

Rack travel in m: 9.50...9.80

3rd pressure hPa : 750

Rack travel in m: 10.00...10.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 750

Speed rpm : 750 Del.quantity cm3/: 104.5...107.5

1000 s: (102.0...110.0)

Spread cm3 : 5.00

1000 s: (7.0)

Aneroid pressure h: rpm_ : 500 Speed

Del.quantity cm3/: 62.5...64.5 1000 s: (60.5...66.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.20

rom : 1220...1230 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 100.0...120.0 1000 s: (97.0...123.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 325 Speed

Rack travel in mm : 6.50...6.70

Del.quantity cm3/: 8.0...12.0 1000 s: (5.5...14.5)

cm3 : 3.50 1000 s: (5.50) Spread

Remarks:

Check electrically unlatched starting

fuel delivery (EES) with 24 volt.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : 30.04.92 Edition Replaces Test oil : ISO-4113 Combination no. : 0 403 476 119 Injection pump Pump designation : PES6MW100/720RS1217-EP type number : 0 413 406 214 Governor Governor design. : RSV325...1200MW0A349 Governer no. : 0 420 085 195 Customer-spec. information Customer : MWM : TD 226 B 6 Engine 1st version kW : 136.0 Rated speed : 2400 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., par: 1.50 Test nozzle holder assembly : 0 681 343 009 Opening pressure, bar : 172...175 Test lines : 1 680 750 014

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.

BEGINNING OF DELIVERY Test pressure, bar: 30...32

per values

Prestroke mm : 4.00...4.10 : (3.95...4.15) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance + - * : 0.50 (0.75) BASIC SETTING 1st speed rpm : 1175 Rack travel in mm : 10.10...10.20

Rack travel in mm : 10.10...10.20

Del.quantity cm3/ : 11.3...11.5

100 s: (11.1...11.7)

Spread cm3 : 0.3

100 s: (0.6)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Speed rpm : 1175 Aneroid pressure h: 750

Del.quantity : 113.0...115.0 1000 : (111.0...117.0)

Spread cm3 : 3.50 1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 90...98

Setting point:

Speed rpm : 800 Rack travel in mm : 0.6 Testina:

1st rack travel in: 9.10

rpm : 1220...1230 Speed

2nd rack travel in: 4.00

rpm : 1250...1280 Speed

3rd rack travel in: 4.00

Speed rpm : 1265...1295 4th rack travel in: 1350

Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever

position degrees: 65...73

Setting point w/out bumper spring

rpm

Rack travel in mm: 6.1

Testing:

Speed rpm : 100

Minimum rack trave: 19.00

rpm

Rack travel in mm : 6.00...6.20

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1175 1st speed

Rack travel in m: 10.10...10.20

2nd speed rpm : 750

Rack travel in m: 10.80...10.90

3rd speed rpm : 1025

Rack travel in m: 10.30...10.60

Aneroid/Altitude

Compensator Test

1st version

Setting

: 500 Speed man

Pressure hPa : -

: 8.50...8.60 Rack travel mm

Measurement

Speed $1/\min : 500$

1st pressure hPa : 270

Rack travel in m: 9.10...9.20

2nd pressure hPa : 450

Rack travel in m: 9.90...10.20

3rd pressure hPa : 750

Rack travel in m: 10.80...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 750

Speed

rpm: : 750

Del.quantity cm3/: 121.5...124.5

1000 s: (119.0...127.0)

cm3 : 5.00 Spread

1000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 62.5...64.5

1000 s: (60.5...66.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.10

rpm : 1220...1230 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 100.0...120.0

1000 s: (97.0...123.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 325 Rack travel in mm : 6.50...6.70

Del.quantity cm3/: 8.0...12.0 1000 s: (5.5...14.5)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

Check electrically unlatched starting

fuel delivery (EES) with 24 volt.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet

: MB

Edition

: 30.04.92

Replaces

Test oil

: ISO-4113

Combination no.

: 9 400 087 431

Injection pump

Pump designation : PES6P120A720RS3256-2

EP type number

: 9 400 087 ...

Governor

Governor design. : RQV300...1300PA965-2

Governer no.

: 9 420 080 285

Customer-spec. information Customer

: MB-NFZ

Engine

: 0M366 LA

1st version kW

Rated speed

: 141.7 : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. *C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly

: 1 688 901 019

Opening.

pressure, bar

: 207...210

Orifice plate

diameter mm : 0,8

Test lines

: 1 680 750 075

Outside diameter

x Wall thickness

x Length mm

: 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 3.00...3.10 : (2.95...3.15)

Firing order

Rack travel in mm : 20.00...21.00

: 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - *

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm: 1000

Rack travel in mm : 4.80...5.40

Del.quantity cm3/: 1.7...2.0

100 s: (1.4...2.3)

Spread

Spread

cm3 : 0.2

100 s: (0.3)

2nd speed rpm : 300.0 Rack travel in mm : 7.2...7.5 Del.quantity cm3/: 1.0...1.6

100 s: (0.7...1.9)

cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed

rpm : 300

travel mm

: 0.80...1.30

2nd speed

rpm : 660

travel mm

: 3.80...4.30

3rd speed travel mm rpm : 960

4th speed

: 5.20...5.70

: 1357 rpm

travel mm

: 8.00...8.50

5th speed travel mm

: 1492 rpm

: 9.80...10.30

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1385

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

rpm : 1000 Speed : 17.0...20.0 Del.quantity 1000 : (14.0...23.0) : 2.00 cm3 Spread 1000 : (3.00)RATED SPEED 1st version Setting point: Speed : 1385 rpm Rack travel in mm: 16.5 Testing: 1st rack travel in: 9.60 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 rpm : 1415...1445 Speed 4th rack travel in: 1550 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 73...81 Setting point w/out bumper spring rpm : 300 Speed Rack travel in mm: 7.4 Testina: rpm : 100 Speed Minimum rack trave: 9.00 Speed rpm : 300 Rack travel in mm : 7.30...7.50 CONSTANT REGULATION Speed rpm : 300...450 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 500 Measurement $1/\min : 500$ Speed 1st pressure hPa : 250 Rack travel in m: 0.50...0.70 2nd pressure hPa : 1200 Rack travel in m: 1.10...1.30 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS

1st version

1st version Aneroid pressure h: 1200 Speed rpm : 1300 Del.quantity cm3/ : 140.0...142.0 1000 s: (137.0...145.0) Spread : 8.00 cm3 1000 s: (12.) Aneroid pressure h: 1200 Speed : 800 rpm Del.quantity cm3/: 115.0...119.0 1000 s: (112.0...122.0) Spread cm3 : 8.001000 s: (12.00 : 500 Speed rpm Del.quantity cm3/: 56.0...58.0 1000 s: (53.0...61.0) cm3 : 8.00 Spread 1000 s: (12.00 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.60 Speed rpm : 1340...1350 STARTING FUEL DELIVERY : 100 Speed rom Del.quantity cm3/: 90.0...110.0 1000 s: (86.0...114.0) LOW IDLE Speed rpm : 300 Rack travel in mm : 7.20...7.50 Del.quantity cm3/: 10.0...16.0

1000 s: (7.0...19.0)

cm3 : 8.00

1000 s: (12.00)

Remarks:

Spread

A18

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

: MB 6,0 i 5 : 30.04.92 Test sheet Edition : 09.91 Replaces Test oil : ISO-4113

Combination no. : 9 400 087 450

Injection pump

Pump designation: PES6P120A720RS3256-2

EP type number : 9 400 087 ...

Governor

Governor design. : RQV300...1300PA978

: 9 420 080 296 Governer no.

Customer-spec. information Customer : MB-NFZ

: 0M366 LA Engine

1st version kW : 126.8 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0.8

Test lines : 1 680 750 075

Outside diameter

x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.00...3.10 : (2.95...3.15) Prestroke mm

Rack travel in mm : 20.00...21.00 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 4.80...5.40

Del.quantity cm3/: 1.7...2.0

100 s: (1.4...2.3)

Spread cm3 : 0.2

100 s: (0.3)

rpm : 300.0 2nd speed Rack travel in mm: 7.2...7.5 Del.quantity cm3/: 1.0...1.6

100 s: (0.7...1.9)

Spread cm3 : 0.8100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 0.80...1.30 travel mm

rpm : 660 2nd speed

: 3.80...4.30 travel mm

rpm : 960 3rd speed travel mm

: 5.20...5.70 rpm : 1357 4th speed

: 8.00...8.50 travel mm

rpm : 1492 5th speed

: 9.80...10.30 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1385

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 1000 Speed Del.quantity : 17.0...20.0 1000 : (14.0...23.0) cm3: 2.00 Spread 1000 : (3.00) RATED SPEED 1st version Setting point: Speed rpm Rack travel in mm: 16.5 Testing: 1st rack travel in: 9.60 Speed rpm : 1340...1350 2nd rack travel in: 4.00 : 1415...1445 Speed חסה 4th rack travel in: 1550 Speed rom : 0.00...1.00LOW IDLE 1 Control lever position degrees: 73...81 Setting point w/out bumper spring : 300 rpm Rack travel in mm: 7.4 Testing: Speed : 100 MON Minimum rack trave: 9.00 rpm : 300 Rack travel in mm : 7.30...7.50 CONSTANT REGULATION Speed rpm : 300...450 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rom Measurement Speed $1/\min : 500$ 1st pressure hPa : 350 Rack travel in m: 0.30...0.50 2nd pressure hPa : 1200 Rack travel in m: 0.70...0.90 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS

A20

1st version Aneroid pressure h: 1200 : 1300 Speed rpm Del.quantity cm3/: 140.0...142.0 1000 s: (137.0...145.0) Spread cm3 : 8.00 1000 s: (12.) Aneroid pressure h: 1200 Speed rpm : 800 Del.quantity cm3/: 115.0...119.0 1000 s: (112.0...122.0) Spread cm3 : 8.00 1000 s: (12.00 : 500 Speed rpm Del.quantity cm3/: 63.0...65.0 1000 s: (60.0...68.0) cm3 : 8.00 Spread 1000 s: (12.00 BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.60 rpm : 1340...1350 Speed STARTING FUEL DELIVERY : 100 Speed man

Speed rpm : 100
Del.quantity cm3/ : 90.0...110.0
1000 s: (86.0...114.0)
LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.20...7.50
Del.quantity cm3/ : 10.0...16.0
1000 s: (7.0...19.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

Start-of-delivery blocking at 4.05 mm after cyl. 1 start-of-delivery

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet : 07.05.92 Edition

replaces

Calibrating oil : ISO-4113

: VE6/12F12O0R381-2 Injection pump Type number : 0 460 426 154

Customer Part-No.: 391 6974

Customer-specific information

Customer : CDC

: 6 BT - 5.9 Engine

KW: 92.5 Power 1/min: 2400 Speed

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 027

Opening

bar: 250.00...253.00 Pressure

Perforated-plate

mm: 0.5 diameter

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.3

(from BDC): +0.02(0.04)

Start of delivery block

Piston stroke mm: 1.5

mm: +-0.02(0.06)

Outlet

Injection pump setting values Test specifications in parentheses Timing-device travel

1/min: 750 Speed

Setting value mm: 3.40...3.80

Shutoff

electromagnet Volt: 12

Supply-bump pressure

Speed 1/min: 750

Setting value bar: 3.50...4.10

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 750 Speed

Del. quantity cm3/

1000s.: 62.50...63.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0

1000S.: (4.5)

Low-idle speed regulation

1/min: 340 Speed

Del. quantity cm3/

1000s.: 8.00...14.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

1/min: 1265 Speed

Del. quantity cm3/

1000s.: 42.50...48.50

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 75.00...125.00

1000s.: 75.00 mind

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1100 2nd speed

mm: 5.60...6.40 TD travel

mm: (5.30...6.70)

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 42.50...48.50 1000s.: (39.50...51.50) 9th speed 1/min: 1200 1/min: 750 3rd speed mm: 3.40...3.80 TD travel mm: (2.90...4.30) Shutoff Shutoff electromagnet Volt: 12
4th speed 1/min: 500
TD travel mm: 1.50...2.30
mm: (1.20...2.60) Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 60.50...63.50 1000s.: (58.50...65.50) electromagnet Volt: 12 Supply-pump pressure characteristic: 1/min: 750 12th speed 1st speed 1/min: 500 Shutoff electromagnet Volt: 12
Del. quyntity cm3/: 62.50...63.50
1000s.: (60.00...66.00) Supply-pump pressure bar: 2.40...3.00 Shutoff electromagnet Volt: 12 2nd speed 1/min: 750 20th speed 1/min: 500 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 55.00...63.00 1000s.: (53.00...65.00) Supply-pump bar: 3.50...4.10 pressure Shutoff electromagnet Volt: 12 3rd speed 1/min: 1100 Mech. shutoff: Supply-pump Mech. Abstellung: pressure bar: 4.80...5.40 Shutoff 1st speed 1/min: 1100 electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Overlow quantity at overflow valve: Shutoff electromagnet volt: 12 1st speed Shutoff 1/min: 500 Electr. shutoff: electromagnet Volt: 12 : 41.70...83.40 Overflow cm3/10s: (36.70...98.40) 1/min: 1200 quantity 2nd speed 1000s.: (0.00...3.00) Shutoff Shutoff electromagnet Volt: 12 electromagnet volt: -: 55.60...139.00 Overflow cm3/10s: (40.60...153.00) quantity Idle delivery: Delivery-quant. and breakaway char.: 1/min: 340 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 8.00...14.00 10005:: (6.00...16.00) 2nd speed 1/min: 1350 Shutoff cm3/: 5.5 1000s.: (7.0) electromagnet Volt: 12 Dispersion Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 1/min: 500 2nd speed 3rd speed 1/min: 1280 Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 Del. quantity cm3/: 15.00...55.00 Del. quantity cm3/: 0.00...4.00 1000s.: (0.00...4.00) 1000s.: (15.00...55.00) Shutoff Automatic starting fuel delivery: electromagnet Volt: 12 5th speed 1/min: 1265 1st speed 1/min: 130 Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12

Del. quantity cm3/: 70.00...120.00 1000s.: (70.00...120.00) 2nd speed 1/min: 300 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.00...80.00 1000s.: (30.00...80.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 75.00...125.00 1000s.: (75.00...125.00) Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation K mm: -KF mm: 5.0...5.4 mm: 1.2...1.6 mm: 1.7 MS SVS max. Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet : CUM

Edition : 06.05.92

replaces

: ISO-4113 Calibrating oil

: VE6/12F1100R371-2 Injection pump : 0 460 426 201

Type number

Customer Part-No. :

Customer-specific information

Customer

: CUM

Engine

: 6 T 590

TEST BENCH REQUIREMENTS

Calibrating oil

return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

bar: 250.00...253.00 Pressure

Perforated plate

diameter

mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00

x Wall thickness : 2.00

x Length

mm: 840

Start of delivery

mm: 0.2 Prestroke

(from BDC): +0.02(0.04)

Start of delivery block

Piston stroke mm: 1.5

mm: +-0.02(0.06)

Outlet

; D

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 700

Setting value mm: 1.30...1.70

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 700 Speed

Setting value bar: 4.70...5.30

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 700 Speed

Del. quantity cm3/

1000s.: 76.00...77.00

Shutoff

electromagnet Volt: 12 cm3/: 4.0 Dispersion

1000s.: (4.5)

Low-idle speed regulation

1/min: 450 Speed

Del. quantity cm3/ 1000s.: 8.00...12.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5

1000s.: (7.0)

Full-load speed regulation

1/min: 1160

Del. quantity cm3/

1000s.: 45.00...51.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 80.00...120.00

1000s.: 80.00 mind

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1100 2nd speed

mm: 3.90...4.70 TD travel

mm: (3.60...5.00)

Shutoff

electromagnet Volt: 12

3rd speed 1/min: 700

Del. quantity cm3/: 45.00...51.00 1000s.: (42.00...54.00) 9th speed 1/min: 1100 mm: 1.30...1.70 TD travel mm: (0.80...2.20) Shutoff electromagnet Volt: 12 4th speed 1/min: 500 Shutoff TD travel mm: 0.00...0.70 mm: (0.00...1.00) Shutoff electromagnet Volt: 12 Shutoff Supply-pump pressure characteristic: 1/min: 500 1st speed Shutoff Supply-pump bar: 3.80...4.40 pressure electromagnet Volt: 12 Del. quantity cm3/: 68.00...76.00 1000s.: (66.00...78.00) Shutoff electromagnet Volt: 12 2nd speed 1/min: 700 2nd speed Supply-pump Mech. shutoff: bar: 4.70...5.30 pressure Shutoff Electr. shutoff: electromagnet Volt: 12 3rd speed 1/min: 1100 1st speed 1/min: 450 Del. quantity cm3/: 0.00...3.00 Supply-pump pressure bar: 6.50...7.10 1000s.: (0.00...3.00) Shutoff Shutoff electromagnet Volt: 12 electromagnet volt: -Overlow quantity at overflow valve: Idle delivery: 1st speed 1/min: 500 1st speed 1/min: 450 Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 : 41.70...83.40 Del. quantity cm3/: 8.00...12.00 1000s.: (5.00...15.00) Overflow cm3/10s: (26.70...98.40) quantity cm3/: 5.5 1000s.: (7.0) 2nd speed 1/min: 1100 Dispersion Shutoff electromagnet Volt: 12 1/min: 550 2nd speed : 55.60...139.00 Overflow Shutoff quantity cm3/10s: (40.60...153.00) electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Delivery-quant. and breakaway char .: Automatic starting fuel delivery: 2nd speed 1/min: 1230 Shutoff 1/min: 180 1st speed electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 Shutoff electromagnet Volt: 12 1000s.: (0.00...3.00) Del. quantity cm3/: 80.00...140.00 1000s.: (80.00...140.00) 1/min: 1190 3rd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.00...30.00 1000s.: (10.00...30.00) 2nd speed 1/min: 350 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 40.00...80.00 1000s.: (40.00...80.00) Shutoff electromagnet Volt: 12 5th speed 1/min: 1160 Shutoff 1/min: 100 4th speed electromagnet Volt: 12 Shutoff electromagnet Volt: 12

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: -

mm: 5.0...5.4 mm: 0.8...1.2 mm: 3.3 KF MS SVS max.

Remarks:

: C.D.C # 392 1960

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet

: 02.06.92 Edition replaces : 04.84 Calibrating oil : ISO 4113

: VE3/10F1800L70 Injection pump Type number : 0 460 403 004

Customer-specific information

Customer : BUKH

Engine : DV-36 TMF

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.35

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening

Pressure bar: 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery

Prestroke mm: 0.2

(from BDC): +-0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1200 Speed Charge press. hPa: 800

Setting value mm: 2.90...3.30

Supply-pump pressure

1/min: 1200 Speed hPa: 800 Charge press

Setting value bar: 5.10...5.70

Full-load del. with charge press.:

Speed 1/min: 1700 Charge press. hPa: 800

Del. quantity cm3/ 1000s.: 43.50...44.50 Dispersion cm3/: 3.0

1000s.: -

Full-load del. w/out charge press.:

1/min: 700 Speed

Del. quantity cm3/

1000s.: 34.50...36.50

Low-idle speed regulation

1/min: 450 Speed Charge press hPa: -

Del. quantity cm3/ 1000s.: 5.50...9.50

Full-load speed regulation

1/min: 1850 Speed Charge press hPa: 800

Del. quantity cm3/ 1000s.: 20.00...26.00

Start:

Speed 1/min: 100 Charge press hPa: -Del. quantity cm3/: -1000s.: 35.00

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 900 hPa: 800 Charge press

TD travel mm: 1,10...1.90 mm: (0.80...2.20)

1/min: 1200 2nd speed

Charge press hPa: 800

TD travel mm: 2.90...3.30 mm: (2.40...3.80)

1/min: 1600 3rd speed Charge press hPa: 800

mm: 5.00...5.80 TD travel mm: (4.70...6.10)

Supply-pump pressure characteristic:

1/min: 200 1st speed Charge press. hPa: 800

Supply-pump	4 Mech. shutoff:
pressure bar: 0.801.40	
pressure par: 0.00(.40	Mech. Abstellung:
2nd speed 1/min: 1200	†
Charge press. hPa: 800	+ 1st speed 1/min: 1800
Supply-pump	+ Charge press. hPa: -
pressure bar: 5.105.70 3rd speed 1/min: 1800	+ 1000s.: -
3rd speed 1/min: 1800	
Charge press. hPa: 800	Idle delivery:
	T late detivery:
Supply-pump	T 4
pressure bar: 8.008.60	+ 1st speed 1/min: 450
	+ Del. quantity cm3/: 5.509.50
Overlow quantity at overflow valve:	4 1000s.: (3.5011.50)
•	+ Dispersion cm3/: 3.0
1st speed 1/min: 500	10005.: -
Charge press. hPa: -	2nd speed 1/min: 480
Overflag 27 70 97 70	
Overflow : 27.7083.30 guantity cm3/10s: (15.7098.30)	Del. quantity cm3/: 1.50
quantity cm3/10s: (15.7098.30)	+ 1000s.: -
2nd speed 1/min: 1800	+ 3rd speed 1/min: 530
Charge press. hPa: -	+ Del. quantity cm3/: 0.001.50
Overflow : 55.50138.80	+ 1000s.: -
quantity cm3/10s: (40.50153.80)	1.0000
quarter (#5, 103, 143, 103, 103)	Nest comment a submental and a summer
Online manufacture of the state of	+ Automatic starting fuel delivery:
Delivery-quant. and breakaway char.:	†
	+ 1st speed 1/min: 450
	+ Charge press. hPa: -
1nd speed 1/min: 700	+ Del. quantity cm3/: 38.00
Charge-air pressure-setting	+ 1000s.: -
point hPa: 265	1 10000
	2nd amond 4/min 500
	+ 2nd speed 1/min: 580
Del. quantity cm3/: 37.5039.50	+ Charge press. hPa: -
1000s.: (35.5041.50)	+ Del. quantity cm3/:36.00
2nd speed 1/min: 2000	1000s.: -
Charge press. hPa: 800	1
Del. quantity cm3/:1.00	+ Shutoff electromagnet:
1000s.: -	Strator r except anagree.
	T contract
3rd speed 1/min: 1900	+ Cut-in
Charge press. hPa: 800	† min voltage : 10.0
Del. quantity cm3/: 2.008.00	+ Rated voltage : 12.0
1000S.: (1.00.,.9.00)	+
4th speed 1/min: 1850	+ Mounting and assembly dimensions:
Charge press. hPa: 800	
Del. quantity cm3/: 20.0026.00	Designation
	1
1900s.: (19.0027.00)	+ K mm: -
5th speed 1/min: 1700	+ KF mm: 5.96.1
Charge press. hPa: 800	+ MS mm: 0.70.9
Del. quantity cm3/: 43.5044.50	+ SVS max. mm: 4.2
1000s.: (41.7046.30)	+ XK mm: 20.222.2
6th speed 1/min: 1200	+ XL mm: 12.515.8
Charge press. hPa: 800	Ya mm: 37.239.2
Dol grantity and 1/ 50 // 50	
Del. quantity cm3/: 44.5046.50	+ Yb mm: 52.258.6
1000\$.: (43.2047.80)	†
7th speed 1/min: 700	<pre>+ * Correction at adjusting nut (46)</pre>
Charge press. hPa: 800	+
Del. quantity cm3/: 40.0043.00	+
10005.: (39.2043.80)	1
8th speed 1/min: 700	1
Charge press. hPa: -	1
	T
Del. quantity cm3/: 34.5036.50	T
10038.: (33.2037.80)	†
	+

SOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet : VMA

Edition : 02.06.92 replaces : 07.84 Calibrating oil : ISO4113

Injection pump : VE4/10F1900L106

Type number : 0 460 404 026

Customer—specific information Customer : VM MOTORI

: HR 492 HT9 Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil return temp.

with thermometer : 40...48 : 42...50 Electronically

Inlet press., bar: 0.35

Calibrating nozzle-holder

assembly : 1 688 901 000

Opening |

bar: 147...150 Pressure

Test inj. tubing : 1 680 750 017

Cutside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1600 Charge press. hPa: 750

Setting value mm: 5.10...5.50

Supply-pump pressure

1/min: 1600 Speed Charge press hPa: 750

Setting value bar: 5.50...6.10

Full-load del. with charge press.:

Speed 1/min: 1600 Charge press. hPa: 750

Del. quantity cm3/ 10005.: 47.00...48.00 cm3/: 3.0

Dispersion 1000s.: -

Full-load del. w/out charge press.:

Speed 1/min: 600 Del. quantity cm3/

1000s.: 32.00...35.00

Low-idle speed regulation

Speed 1/min: 350 Charge press hPa: -Del. quantity cm3/

1000s.: 16.00...20.00 Del. quantity cm3/: 2.5 1000s.: -

Full-load speed regulation

1/min: 1900 Speed Charge press in Pa: 750

Del. quantity cm3/

1000s.: 43.50...46.50

Start:

Speed 1/min: 100 Charge press hPa: -Del. quantity cm3/: -mind 1000s.: 65.00

Inspection pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000 Charge press hPa: 750

mm: 1.00...1.80 TD travel mm: (0.70...2.10)

1/min: 1600 2nd speed hPa: 750 Charge press

TD travel mm: 5.10...5.50 mm: (4.60...6.00)

1/min: 1900 3rd speed Charge press hPa: 750

mm: 6.70...7.50 TD travel

mm: (6.40...7.80)

Supply-pump pressure characteristic:

1/min: 400 1st speed

Charge press. hPa: 750 Mech. Abstellung: Supply-pump bar: 1.50...2.10 pressure 1/min: 1900 1st speed 2nd speed 1/min: 1600 Charge press. hPa: 750 Idle delivery: Supply-pump bar: 5.50...6.10 pressure 1st speed 1/min: 350 3rd speed 1/min: 1900 Del. quantity cm3/: 16.00...20.00 Charge press. hPa: 750 1000s.: 14.00...22.00 cm3/: 2.5 Supply-pump Dispersion bar: 6.80...7.40 pressure 1000s.: 1/min: 430 2nd speed Del. quantity cm3/: 2.60... 1000s.: -Overlow quantity at overflow valve: 1st speed 1/min: 500 3rd speed 1/min: 500 : 55.50...111.10 Overflow Del. quantity cm3/: ...1.00 cm3/10s: (40.50...126.10) quantity 1000s.: -1/min: 1900 2nd speed Overflow : 55.50...111.10 Automatic starting fuel delivery: cm3/10s: (40.50...126.10) quantity 1st speed 1/min: 350 Del. quantity cm3/: 48.00... Delivery quant. and breakaway char.: 1000s.: -1nd speed 1/min: 750 1/min: 450 2nd speed Charge-air pressure-setting point hPa: 300 Del. quantity cm3/: ...47.50 LDA-stroke mm: 4.2 Shutoff electromagnet: Del. quantity cm3/: 41.50...44.50 1000s.: (40.00...46.00) Cut-in 1/min: 2100 min voltage 2nd speed : 10.0 Charge press. hPa: 750 Rated voltage : 12.0 Del. quantity cm3/: ...1.00 1000s.: -Mounting and assembly dimensions: 3rd speed 1/min: 2050 Charge press. hPa: 750 Del. quantity cm3/: 2.00... 1000s.: -Designation mm: 3.2...3.4 mm: 5.7...6.0 K KF 4th speed 1/min: 2030 115 mm: 1.4...1.6 Charge press. hPa: 750 SVS max. mm: 3.6 Del. quantity cm3/: 17.00...23.00 1000s.: (16.00...24.00) mm: 20.2...22.2 XK mm: 14.2...17.6 XL mm: 37.2...39.2 mm: 55.7...63.5 1/min: 1900 5th speed Ya Charge press. hPa: 750 Yb Del. quantity cm3/: 43.50...46.50 1000s.: (41.00...49.00) 6th speed 1/min: 1600 Remarks: Operate control lever after each Charge press. hPa: manifold-pressure compensator pressure Del. quantity cm3/: 31.00...34.00 change. 1000s.: (29.80...35.20) 7th speed 1/min: 1600 * Correction at adjusting nut (46) Charge press. hPa: 750 Del. quantity cm3/: 47.00...48.00 1000s.: (44.80...50.20) 1/min: 600 8th speed Charge press. hPa: Del. quantity cm3/: 32.00...35.00 1000s.: (30.50...36.50) Mech. shutoff:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet : OPE

Edition 15.06.92 replaces : 19.07.89 Calibrating oil : ISO-4113

Injection pump : VE4/10F2100L297-1 : 0 460 404 056 Type number

Customer Part-No. :

Customer-specific information

Customer : OPEL

Engine : 2,3YDT OM.; SEN.M-EGR

Power KW: 74

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil return temp.

with thermometer: 40...48 Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening

bar: 147.00...150.00 Pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery

Indicator setting

Piston stroke mm: 1.0 **Outlet** : D

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1000 Speed Charge press. hPa: 1000

Setting value mm: 2.70...3.10 AFB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1000 Speed Charge press hPa: 1000

Setting value bar: 4.20...4.80

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1200 Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 62.50...63.50

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12 cm3/: 3.0 Dispersion 1000s.: (3.0)

Full-load del. w/out charge press.:

1/min: 500

Del. quantity cm3/

1000s.: 40.50...41.50

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KSB/AFB valve Volt: 12

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 290

Del. quantity cm3/

1000s.: 13.50...17.50

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.0 1000s.: (3.0)

Full-load speed regulation

1/min: 2500 Speed hPa: 1000 Charge press

Del. quantity cm3/

1000s.: 15.00...21.00

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

-	∔ Shutoff
Start:	electromagnet Volt: 12
·	5th speed 1/min: 1500
Speed 1/min: 100	Charge press. hPa: 1000
Del. quantity cm3/: 50.0066.00	TD travel mm: 5.205.80
Del. quantity cm3/: 50.0066.00 - mind 1000s.: 50.00 -	mm: (4.806.20)
KSB/AFB	KSB/AFB
Valve Volt: 12	valve Volt: 12
Shutoff -	Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
described value is	9th speed 1/min: 300
Load-dependent start of delivery:	Charge press. hPa: 1000
Inj.—qty.dif.measurement:	TD travel mm: 1.503.50
inj. qcy.arr.medsaremere.	mm: (1.303.70)
Speed 1/min: 1000	Shutoff
Charge press hPa: 12	electromagnet Volt: 12
Inj.—qty. cm3/	
difference 1000s.: 22.0024.00*	10th speed 1/min: 800
KSB/AFB -	Charge press. hPa: 1000
	TD travel mm: 3.505.90
valve Volt: 12	mm: (2.906.50)
Shutoff	Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
TD-travel dif.measurement -	
correttore anticipo iniezione (SV)	Supply-pump pressure characteristic:
1. Speed 1/min: 1000 -	+
TD-travel	1st speed
difference mm: 1.201.40* -	- Charge press. hPa: 1000
KSB/AFB -	- Supply-pump
valve Volt: 12	pressure bar: 5.907.50
Shutoff	KSB/AFB
electromagnet Volt: 12	valve Volt: 12
	Shutoff
Inspection-pump test specifications -	electromagnet Volt: 12
Test specifications in parentheses	2nd speed 1/min: 1600
TODO OPOSTI FORETONO TIT PAR SI TENTOSCO	Charge press. hPa: 1000
Timing-device characteristic:	Supply-pump
Thing device that acter 13the.	pressure bar: 4.204.80
2nd speed 1/min: 2100	KSB/AFB
Charge press hPa: 1000	
TD travel mm: 8.008.80	1
	Shutoff
mm: (7.709.10)	electromagnet Volt: 12
KSB/AFB	- 3rd speed 1/min: 800
valve Volt: 12	Charge press. hPa: 1000
Shutoff	- Supply-pump
electromagnet Volt: 12	pressure bar: 3.704.30
3rd speed 1/min: 1000 -	KSB/AFB
Charge press hPa: 1000	valve Volt: 12
TD travel mm: 2.703.10 -	- Shutoff
mm: (2.203.60) -	+ electromagnet Volt: 12
KSB/AFB -	+ 4th speed 1/min: 300
valve Volt: 12	Charge press. hPa: 1000
Shutoff -	- Supply-pump
electromagnet Volt: 12	pressure bar: 4.204.80
4th speed 1/min: 800	Shutoff
Charge press hPa: 1000	electromagnet Volt: 12
TD travel mm: 1.302.10	2 2001 anagno 100 1000 12
mm: (1.002.40)	Overlow quantity at overflow valve:
KSB/AFB	To ten equalities at over itow valve.
valve Volt: 12	1st speed 1/min: 500
The state of the s	[150 Opeca 17 mm. 200

		+	16th speed 1/min: 800
valve Volt:	12	+	KSB solenoid-operated
Shutoff		+	valve volt: 12
electromagnet Volt:	12	+	Shutoff
Overflow :	41.7083.40	+	electromagnet volt: 12
quantity cm3/10s:	(41.7083.40)	1	Del. quantity cm3/: 40.5043.50
2rd speed 1/min:	2150		1000H
		T	
Charge press. hPa:	1000	†	18th speed 1/min: 500
KSB/AFB	40	†	KSB/AFB
valve Volt:	12	+	valve Volt: 12
Shutoff		+	Shutoff
electromagnet Volt:	12	ļ	elestromagnet Volt: 12
Overflow :	55.60139.00	+	Del. quantity cm3/: 40.5041.50
quantity cm3/10s:		1	1000s.: (38.7043.30)
,,		1	20th speed 1/min: 800
Delivery-quant. and	breakaway chan ·	1	Charge press. hPa: 1000
vectively quarte. and	Di Cakaway Chai	T	
		†	KSB/AFB
	400	†	valve Volt: 12
1nd speed 1/min:		+	Shutoff
Charge-air pressure		+	electromagnet Volt: 12
point hPa:	500	+	Del. quantity cm3/: 60.5063.50
LDA-stroke mm:	6.5	1	1000s.: -
KSB/AFB			, 555511
valve Volt:	12	1	Mech. shutoff:
Shutoff	12	T	neur. Shutorr.
and the second s	42	T	Floring short off
electromagnet Volt:	12	+	Electr. shutoff:
Del. quantity cm3/: 1000s.:	55.5056.50	†	
1000s.:	(53.0059.00)	+	1st speed 1/min: 290
2nd speed 1/min:	2700	+	Del. quantity cm3/: 0.003.00
Charge press. hPa:		1	1000s.: (0.003.00)
KSB/AFB	1000	1	1000011 (0.00111.00)
valve Volt:	10	T	Talla alala, cama
 -	12	T	Idle delivery:
Shutoff	40	+	A .
electronagnet Volt:		Ť	1st speed 1/min: 290
Del. quantity cm3/:	n nn 3 nn	1	KSB/AFB
	0.00	- 1	NOD/ AT D
1000s.:	(0.003.00)	1	valve Volt: 12
1000s.:	(0.003.00)	+	valve Volt: 12
1000s.: 5th speed 1/min:	(0.003.00) 2500	+	valve Volt: 12 Shutoff
1000s.: 5th speed 1/min: Charge press. hPa:	(0.003.00) 2500	+	valve Volt: 12 Shutoff electromagnet Volt: 12
1000s.: 5th speed 1/min: Charge press. hPa: KSB/AFB	(0.003.00) 2500 1000	+++++++++++++++++++++++++++++++++++++++	valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 13.5017.50
1000S.: 5th speed 1/min: Charge press. hPa: KSB/AFB valve Volt:	(0.003.00) 2500 1000	+	valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 13.5017.50 1000s.: (11.5019.50)
1000S.: 5th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff	(0.003.00) 2500 1000	+++++++++++++++++++++++++++++++++++++++	valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 13.5017.50 1000s.: (11.5019.50) Dispersion cm3/: 3.0
1000S.: 5th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt:	(0.003.00) 2500 1000 12	+++++++++++++++++++++++++++++++++++++++	<pre>valve</pre>
1000S.: 5th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff	(0.003.00) 2500 1000 12	+++++++++++++++++++++++++++++++++++++++	valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 13.5017.50 1000s.: (11.5019.50) Dispersion cm3/: 3.0
1000s.: 5th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/:	(0.003.00) 2500 1000 12 12 15.0021.00	++++	valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 13.5017.50 1000s.: (11.5019.50) Dispersion cm3/: 3.0 1000s.: (3.0) 2nd speed 1/min: 380
1000s.: 5th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.:	(0.003.00) 2500 1000 12 12 15.0021.00 (14.0022.00)		valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 13.5917.50 1000s.: (11.5019.50) Dispersion cm3/: 3.0 1000s.: (3.0) 2nd speed 1/min: 380 KSB/AFB
1000S.: 5th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 9th speed 1/min:	(0.003.00) 2500 1000 12 12 15.0021.00 (14.0022.00) 2100	+++++++++++++++++++++++++++++++++++++++	valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 13.5017.50 1000s.: (11.5019.50) Dispersion cm3/: 3.0 1000s.: (3.0) 2nd speed 1/min: 380 KSB/AFB valve Volt: 12
1000S.: 5th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 9th speed 1/min: Charge press. hPa:	(0.003.00) 2500 1000 12 12 15.0021.00 (14.0022.00) 2100	+++++++++++++++++++++++++++++++++++++++	valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 13.5017.50 1000s.: (11.5019.50) Dispersion cm3/: 3.0 1000s.: (3.0) 2nd speed 1/min: 380 KSB/AFB valve Volt: 12 Shutoff
1000s.: 5th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 9th speed 1/min: Charge press. hPa: KSB/AFB	(0.003.00) 2500 1000 12 12 15.0021.00 (14.0022.00) 2100 1000	+++++++++++++++++++++++++++++++++++++++	valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 13.5017.50 1000s.: (11.5019.50) Dispersion cm3/: 3.0 1000s.: (3.0) 2nd speed 1/min: 380 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12
1000s.: 5th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 9th speed 1/min: Charge press. hPa: KSB/AFB valve Volt:	(0.003.00) 2500 1000 12 12 15.0021.00 (14.0022.00) 2100 1000	+++++++++++++++++++++++++++++++++++++++	valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 13.5017.50 1000s.: (11.5019.50) Dispersion cm3/: 3.0 1000s.: (3.0) 2nd speed 1/min: 380 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00
1000s.: 5th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 9th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff	(0.003.00) 2500 1000 12 12 15.0021.00 (14.0022.00) 2100 1000	-+	valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 13.5017.50 1000s.: (11.5019.50) Dispersion cm3/: 3.0 1000s.: (3.0) 2nd speed 1/min: 380 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00)
1000s.: 5th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 9th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt:	(0.003.00) 2500 1000 12 12 15.0021.00 (14.0022.00) 2100 1000 12	-+	valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 13.5017.50
1000s.: 5th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 9th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/:	(0.003.00) 2500 1000 12 12 15.0021.00 (14.0022.00) 2100 1000 12 12 51.3053.70	-+	valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 13.5017.50 1000s.: (11.5019.50) Dispersion cm3/: 3.0 1000s.: (3.0) 2nd speed 1/min: 380 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00)
1000s.: 5th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 9th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/:	(0.003.00) 2500 1000 12 12 15.0021.00 (14.0022.00) 2100 1000 12 12 51.3053.70	╌╂╌╂╌╂╌╂╌╂╌╂╌╂╌╂╌╂╌╂╌╂╌╂╌╂╌╂╌╂╌╂╌╂	valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 13.5017.50
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1000s.: 5th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 9th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 12th speed 1/min: Charge press. hPa: KSB/AFB	(0.003.00) 2500 1000 12 12 15.0021.00 (14.0022.00) 2100 1000 12 12 12 51.3053.70 (50.2054.80) 1200 1000	╌╂╌╂╍╂╌╏╌┼╌╂╌╂╌╂╌╂╌╂╌╏╌╏┼╌╏╌╏	Valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 13.5017.50 1000s.: (11.5019.50) Dispersion cm3/: 3.0 1000s.: (3.0) 2nd speed 1/min: 380 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) 3rd speed 1/min: 320 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.0013.00
1000s.: 5th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 9th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 12th speed 1/min: Charge press. hPa: KSB/AFB valve Volt:	(0.003.00) 2500 1000 12 12 15.0021.00 (14.0022.00) 2100 1000 12 12 12 51.3053.70 (50.2054.80) 1200 1000	╌╂╌╂╼╂╌╏╌┼╌╂╌╂╌╂╌╂╌╂╌╂╌╂╌╂╌╂╌╂╌╂╌╂╌╂╌╂╌╂╌╂╌╂╌	valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 13.5017.50
1000s.: 5th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 9th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 12th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff Volt: Shutoff	(0.003.00) 2500 1000 12 12 15.0021.00 (14.0022.00) 2100 1000 12 12 12 51.3053.70 (50.2054.80) 1200 1000 12	╌╂╌╂╼╂╌╏╼┼╌╂╼╂╌╂╾╇╶╊╾╂┈╂╸╂┈╂╌╂╶╂╶╃╼╀╼╂╼╂╍╂╍╂╸	Valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 13.5017.50 1000s.: (11.5019.50) Dispersion cm3/: 3.0 1000s.: (3.0) 2nd speed 1/min: 380 KSB/AFB Valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) 3rd speed 1/min: 320 KSB/AFB Valve Volt: 12 Shutoff electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.0013.00 1000s.: (6.5013.50)
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1000s.: 5th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 9th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 12th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quyntity cm3/:	(0.003.00) 2500 1000 12 12 15.0021.00 (14.0022.00) 2100 1000 12 12 12 51.3053.70 (50.2054.80) 1200 1000 12 12	╌╂╌╂╼╂╌╏╌┼╌╂╌╂╌╂╌╂╌╂╌╂╌╂╌╂╌╂╌╂╌╂╌╂╌╂┼┼┼╌╂╌╂╌╂╌╂	Valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 13.5017.50 1000s.: (11.5019.50) Dispersion cm3/: 3.0 1000s.: (3.0) 2nd speed 1/min: 380 KSB/AFB Valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) 3rd speed 1/min: 320 KSB/AFB Valve Volt: 12 Shutoff electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.0013.00 1000s.: (6.5013.50)

1/min: 1000 3rd speed Inj.-qty. cm3/: 22.00..24.00* difference 1000s.: (20.00...26.00) KSB/AFB Volt: 12 valve Shutoff electromagnet Volt: 12 1/min: 1000 5th speed cm3/: 3.50...6.50# Inj.-qty. difference 1000s.: (3.50...6.50) KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1/min: 1000 1st speed TD-travel : 1.20...1.40* difference mm: (1.20...1.40) KSB/AFB Volt: 12 valve Shutoff electromagnet Volt: 12 1/min: 1000 4th speed : 0.50...1.10# TD-travel difference mm: (0.50...1.10) KSB/AFB Volt: 12 valve Automatic starting fuel delivery: 1/min: 250 1st speed KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12

Del. quantity cm3/: 50.00...60.00 1090s.: (50.00...60.00)

1/min: 400 2nd speed KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 40.00...50.00

1000s.: (40.00...50.00)

3rd speed 1/min: 100

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 50.00...66.00

1000s.: (50.00...66.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

mm: 3.2...3.4 K KF min: 5.6...6.0 MS mm: 0.8...1.2 mm: 37.9...39.9 Ya mm: 38.2...43.8 Yb

Remarks:

Overflow restriction 0.55 mm - Part No. ..303

Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet : VWW

Edition : 04.06.92 Calibrating oil : ISO-4113

Injection pump : VE6/10F2150L152 Type number : 0 460 406 040

Customer-specific information

Customer

Engine : 087T-LT 2.4L (SG)

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.35

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening

bar: 147...150 Pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Injection pump setting values Test specifications in parentheses

Timing device travel

1/min: 1500 Speed Charge press. hPa: 750

Setting value mm: 2.30...2.70

Supply-pump pressure

1/min: 1500 Speed hPa: 750 Charge press

Setting value bar: 6.10...6.70

Full-load del. with charge press.:

Speed 1/min: 1500 Charge press. hPa: 750

Del. quantity cm3/

1000s.: 41.50...42.50

cm3/: 2.5 Dispersion

1000s.: (3.0)

Full-load del. w/out charge press.:

1/min: 600 Speed

Del. quantity cm3/

1000s.: 23.50...24.50

Low-idle speed regulation

Speed 1/min: 375

Del. quantity cm3/

1000s.: 6.00...10.00

Del. quantity cm3/: 2.0 1000s.: (3.0)

Full-load speed regulation

1/min: 2400 Speed hPa: 750 Charge press

Del. quantity cm3/

1000s.: 10.00...14.00

Start:

1/min: 100 Speed

Del. quantity cm3/: 35.00...85.00 mind 1000s.: 35.00

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000

hPa: 750 Charge press TD travel mm: 0.50...1.30

mm: (0.20...1.60)

2nd speed 1/min: 1500 Charge press hPa: 750

TD travel mm: 2.30...2.70

mm: (1.80...3.20)

1/min: 2150 3rd speed hPa: 750 Charge press

TD travel mm: 4.40...5.20

mm: (4.10...5.50)

Supply-pump pressure characteristic:

1st speed 1/min: 600 Charge press. hPa: 750

Supply-pump

pressure bar: 3.70...4.30

2nd speed 1/min: 1500 Charge press. hPa: 750

Supply-pump

bar: 6.10...6.70 pressure

3rd speed 1/min: 2150 Charge press. hPa: 750 Supply-pump bar: 7.80...8.40 pressure Overlow quantity at overflow valve: 1st speed 1/min: 600 : 41.70...83.40 Overflow quantity cm3/10s: (27.80...97.30) 2nd speed 1/min: 2150 Charge press. hPa: 750 Overflow : 55.50...139.00 cm3/10s: (41.70...152.90) quantity Delivery-quant. and breakaway char.: 1nd speed 1/min: 750 Charge-air pressure-setting point hPa: 300 mm: 4.5 LDA-stroke Del. quantity cm3/: 32.50...33.50 1000s.: (30.00...36.00) 2nd speed 1/min: 2600 Charge press. hPa: 750 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 3rd speed 1/min: 2400 Charge press. hPa: 750 Del. quantity cm3/: 10.00...14.00 1000s.: (8.00...16.00) 1/min: 2300 4th speed Charge press. hPa: 750 Del. quantity cm3/: 20.50...30.50 1000s.: (19.50...31.50) 5th speed 1/min: 2150 Charge press. hPa: 750 Del. quantity cm3/: 35.50...37.50 1000s.: (34.30...38.70) 6th speed 1/min: 1500 Charge press. hPa: 750 Del. quantity cm3/: 41.50...42.50 1**000**\$.: (39.80...44.20) 1/min: 600 7th speed Charge press. hPa: 750 Del. quantity cm3/: 37.00...40.00 1000s.: (35.50...41.50) 1/min: 600 8th speed Del. quantity cm3/: 23.50...24.50 1000s.: (21.00,...27.00) Mech. shutoff: Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00)

Idle delivery:

Automatic starting fuel delivery:

2nd speed 1/min: 500 Del. quantity cm3/: 7.00...27.00 1000S:: (7.00...27.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Remarks:

Note inst. in remarks column

Test scheet : VWW Edition : 05.06.92

replaces : -

Calibrating oil : ISO-4113

Injection pump : VE6/10F2400L116-8 Type number : 0 460 405 077

Customer Part-No. :

Customer—specific information

Customer : VW

Engine : 072.4 (2.41.) Vol

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp. °C

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 000

Opening |

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500 Charge press. hPa: 750

Setting value mm: 1.50...1.90

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500 Charge press hPa: 750

Setting value bar: 5.70...6.30

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500 Charge press. hPa: 750

Del. quantity cm3/

1000s.: 42.60...43.60

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5

1000s.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 600

Del. quantity cm3/

1000s.: 26.70...27.70

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 415

Del. quantity cm3/

1000s.: 7.00...9.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.0 1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2675 Charge press hPa: 750

Del. quantity cm3/

1000s.: 11.00...15.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Dei. quantity cm3/: 40.00...70.00

mind 1000s.: 40.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2400 Charge press hPa: 750

TD travel mm: 3.70...4.50 mm: (3.40...4.80)

Shutoff

electromagnet Volt: 12

B09

3rd speed 1/min: Charge press hPa:	750	‡	Charge press. hPa: Shutoff	750
	1.501.90	+	electromagnet Volt:	
Shutoff	(1.002.40)	†	Del. quantity cm3/:	(0.003.00)
electromagnet Volt:	12	I	5th speed 1/min:	
4th speed 1/min:		1	Charge press. hPa:	
Charge press hPa:	750	+	Shutoff	
TD travel mm:	0.301.10	+	electromagnet Volt:	12
	(0.001.40)	+	Del. quantity cm3/:	11.0015.00
Shutoff	4.5	+		(9.0017.00)
electromagnet Volt:	12	+	8th speed 1/min:	
Supply-pump pressure	e characteristic:	‡	Charge press. hPa: Shutoff	
A-+ A (:-	700	+	electromagnet Volt:	12
1st speed 1/min:		†	Del. quantity cm3/:	18.0028.00
Charge press. hPa: Supply-pump	730	†		(17.0029.00)
	3.303.90	I	9th speed 1/min: Charge press. hPa:	
Shutoff	3.303.70	Ţ	Shutoff	700
electromagnet Volt:		+	electromagnet Volt:	12
2nd speed 1/min:		+	Del. quantity cm3/:	
Charge press. hPa:	750	+		(35.1039.50)
Supply-pump	F 70 / 70	+	12th speed 1/min:	
	5.706.30	†	Charge press. hPa:	750
Shutoff electromagnet Volt:	12	†	Shutoff	12
3rd speed 1/min:	2400	I	electromagnet Volt: Del. quyntity cm3/:	12 40 13 40
Charge press. hPa:		1	10035	(40.9045.30)
Supply-pump		+	18th speed 1/min:	
pressure bar:	8.008.60	+	Shutoff	
Shutoff		+	electromagnet Volt:	12
electromagnet Volt:	12	+	Del. quantity cm3/:	26.7027.70
0		+		(24.2030.20)
Overlow quantity at	overtlow valve:	†	20th speed 1/min:	
1st speed 1/min:	600	Ι	Charge press. hPa: Shutoff	730
Shutoff		I	electromagnet Volt:	12
electromagnet Volt:	12	1	Del. quantity cm3/:	35.5038.50
Overflow :	41.7083.40	+	1000s.:	(34.0040.00)
quantity cm3/10s:		+		
2nd speed 1/min:		+	Mech. shutoff:	
Charge press. hPa: Shutoff	750	†	Mech. Abstellung:	
electromagnet Volt:	12	I	1st speed 1/min:	2/.03
	55.60138.90	I	Charge press. hPa:	
quantity cm3/10s:		1	Del. quantity cm3/:	
		+	1000s.:	(0.003.00)
Delivery-quant. and	breakaway char.:	+	Shutoff	
		+	electromagnet volt:	12
1md amount 1/min.	9004	†	El 4 4	
1nd speed 1/min: Charge-air pressure		†	Electr. shutoff:	
point hPa:	-secting -300	Ι	1st speed 1/min:	/.15
LDA-stroke mm:		I	Charge press. hPa:	
Shutoff		1	Del. quantity cm3/:	
electromagnet Volt:	12	+		(0.003.00)
Del. quantity cm3/:	33.5034.50	+	Shutoff	
	(31.0037.00)	+	electromagnet volt:	-
2nd speed 1/min:	2850	+		

Idle delivery: 1st speed 1/min: 415 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.00...9.00 1000s.: (4.00...12.00) Dispersion cm3/: 2.0 1000s.: (3.0) 1/min: 750 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Automatic starting fuel delivery: 1/min: 230 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.00...70.00 1000s.: (30.00...70.00) 1/min: 430 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.00...30.00 1090s.: (10.00...30.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 40.00...70.00 1000s.: (40.00...70.00) Shutoff electromagnet: Cut-in min voltage : 10.0 : 12.0 Rated voltage Mounting and assembly dimensions: Designation K mm: 3.2...3.4 KF mm: 6.3...6.6 mm: 1.6...2.0 mm: 4.0 MS LDA stroke Remarks:

Note inst. in remarks column

Test scheet : FIA Edition : 04.06.92 replaces : 18.02.91 Calibrating oil : ISO-4113

Injection pump : VE3/11F1250L163-1 : 0 460 413 002 Type number

Customer-specific information Customer : IVECO-FIAT

Engine : 8035,06,200

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40...48 : 42...50 Electronically

Inlet press. bar: 0.35

Calibrating nozzle-holder

assembly : 1 688 901 020

Openina

bar: 172...175 Pressure

Perforated-plate

diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1000 Speed

Setting value mm: 2.80...3.20

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1000

Setting value bar: 5.70...6.30

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 800

Del. quantity cm3/

1000s.: 62.50...63.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.5 1000s.: (4.0)

Low-idle speed regulation

1/min: 400 Speed

Del. quantity cm3/

1000s.: 15.50...19.50

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.5 1000s.: (3.5)

Full-load speed regulation

1/min: 1350 Speed

Del. quantity cm3/

1000s.: 37.90...43.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 80.00...130.00

1000s.: 80.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing device characteristic:

1st speed 1/min: 1250

mm: 4.40...5.20 TD travel mm: (4.10...5.50)

1/min: 1000 2nd speed

mm: 2.80...3.20 mm: (2.30...3.70) 1/min: 800 TD travel

3rd speed

TD travel mm: 1.10...1.90

mm: (0.80...2.20)

Supply-pump pressure characteristic:

1/min: 500 1st speed

Supply-pump

bar: 3.40...4.00 1/min: 1000 pressure

2nd speed

Supply-pump

pressure bar: 5.70...6.30

1/min: 1250 3rd speed

Supply-pump

bar: 6.80...7.40 pressure

Overlow quantity at overflow valve:

1st speed 1/min: 500

Overflow : 41.70...83.40 cm3/10s: (41.70...83.40) quantity

1/min: 1250 2nd speed

Overflow : 55.50...139.00 cm3/10s: (55.50...139.00) quantity

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1450

Del. quantity cm3/: 0.00...1.00

1000s.: (0.00...1.00)

1/min: 1400 3rd speed

Del. quantity cm3/: 4.00...16.00 1000s.: (0.00...20.00)

4th speed 1/min: 1350

Del. quantity cm3/: 37.00...43.00 1000s.: (34.00...46.00) 5th speed 1/min: 1250 Del. quantity cm3/: 61.50...64.50

1000s.: (60.00...66.00)

1/min: 800 6th speed

Del. quantity cm3/: 62.50...63.50

1000s.: (60.00...66.00)

1/min: 500 7th speed

Del. quantity cm3/: 53.50...56.50

1000s.: (52.00...58.00)

Mech. shutoff:

Mech. Abstellung:

1/min: 1250 1st speed

Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00)

Electr. shutoff:

1st speed 1/min: 400

Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 400

Del. quantity cm3/: 15.50...19.50

1000s.: (13.50...21.50) cm3/: 3.5 1000s.: (3.5)

Dispersion

1/min: 425 2nd speed

Del. quantity cm3/: 6.00...12.00

1000s.: (5.00...14.00)

3rd speed

Del. quantity cm3/: 0.00...1.00 1000s.: (0.00...1.00)

Automatic starting fuel delivery:

1/min: 475

1/min: 150 1st speed

Del. quantity cm3/: 90.00...140.00

1000s.: (90.00...140.00)

2nd speed 1/min: 250
Del. quantity cm3/: 30.00...50.00
1000S:: (30.00...50.00)

4th speed 1/min: 100

Del. quantity cm3/: 80.00...130.00

1000s.: (80.00...130.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mn: -

KF mm: 5.0...5.4

mm: 1.4...1.8 MS

SVS max. mm: 4.7

mm: 37.9...39.9 Ya mm: 44.0...49.0 Yb

Overflow restriction 0.55 mm - Part No.

..303

Note inst. in remarks column

Test scheet : 05.06.92 Edition replaces : 09.85 Calibrating oil : ISO-4113

Injection pump : VE3/11F1250L163-2 Type number : 0 460 413 004

Customer-specific information : IVECO-FIAT Customer

Engine : 8035.06.220

KW: 33 Power

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.35

Calibrating nozzle-holder

: 1 688 901 020 assembly

Opening

bar: 172...175 Pressure

Test inj. tubing : 1 680 750 C17

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery

Prestroke mm: 0.2

(from BDC): +0.02(0.04)

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 800

Setting value mm: 2.80...3.20

Supply-pump pressure

1/min: 800 Speed

Setting value bar: 4.70...5.30

Full-load del. with charge press.:

1/min: 800 Speed

Del. quantity cm3/

1000s.: 59.00...60.00

Low-idle speed regulation

Speed 1/min: 375

Del. quantity cm3/ 1000s.: 10.50...14.50

Del. quantity cm3/: 3.5

1000s.: 3.5

Full-load speed regulation

1/min: 1400 Speed

Del. quantity cm3/

1000s.: 12.00...18.00

Start:

1/min: 100 Speed

Del. quantity cm3/: 80.00...130.00 mind 1000s.: 80.00

Inspection pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 600 1st speed

mm: C.80...1.60 TD travel mm: (0.50...1.90)

2nd speed 1/min: 800

TD travel mm: 2.80...3.20

mm: (2.30...3.70) 1/min: 1000

3rd speed

mm: 4.50...5.30 TD travel mm: (4.20...5.60)

Supply-pump pressure characteristic:

1/min: 500 1st speed

Supply-pump

bar: 3.20...3.80 pressure

1/min: 800 2nd speed

Supply-pump

pressure bar: 4.70...5.30

1/min: 1250 3rd speed

Supply-pump

pressure bar: 6.70...7.30

Overlow quantity at overflow valve:

1/min: 500 1st speed

Overflow : 41.70...83.40

cm3/10s: (41.70...83.40) quantity

2nd speed 1/min: 1250 Overflow : 55.50...139.00 cm3/10s: (55.50...139.00) quantity Delivery quant. and breakaway char .:

1/min: 1450 2nd speed

Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00)

1/min: 1400 3rd speed

Del. quantity cm3/: 12.00...18.00 1909s.: (12.00...18.00) 4th speed 1/min: 1350 Del. quantity cm3/: 37.00...53.00 1000s.: (35.00...55.00)

5th speed 1/min: 1250

Del. quantity cm3/: 51.50...54.50 1000s.: (49.50...56.50)

1/min: 800 6th speed

Del. quantity cm3/: 59.00...60.00

1000s.: (56.00...63.00)

1/min: 500 7th speed

Del. quantity cm3/: 54.00...57.00 1000s.: (52.00...59.00)

Mech. shutoff: Mech. Abstellung:

1/min: 1250 1st speed

Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

Electr. shutoff:

1600s.: (0.00...3.00)

Idle delivery:

1/min: 375 1st speed

Del. quantity cm3/: 10.50...14.50 1000s.: 8.50...16.50

cm3/: 3.5 Dispersion

1000s.: (3.5)

1/min: 425 2nd speed Del. quantity cm3/: 2.00...8.00 1000s.: (1.00...9.00) 3rd speed 1/min: 500

Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 250

Del. quantity cm3/: 20.00...50.00

1000s.: (20.00...50.00)

1/min: 150 2nd speed

Del. quantity cm3/: 80.00...130.00

1000s.: (80.00...130.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: -KF mm: 5.1...5.4 MS mm: 1.5...1.7

SVS max. mm: 4.3

mm: 17.0...19.0 XK mm: 14.5...17.9 XL Ya mm: 37.9...39.9 mm: 46.0...51.0

Overflow restriction 0.55 mm - Part No.

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Tractor (tractor engines)

Note inst. in remarks column

Test scheet : FIA

Edition : 05.03.92 replaces : 07.85 Calibrating oil : ISO-4113

: VE3/11F1200L163-3 Injection pump Type number : 0 460 413 005

Customer Part-No. :

Customer-specific information : IVECO-FIAT Customer

: 8035.05.265 Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil °C return temp.

with thermometer: 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 020 assembly

Openina

Pressure bar: 172.00...175.00

Test inj. tubing : Lochduese 0,6 mm

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 800 Speed

Setting value mm: 3.20...3.60

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 800 Speed

Setting value bar: 4.20...4.80

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 800

Del. quantity cm3/ 1000s.: 62.50...63.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.5 1000s.: (4.0)

Low-idle speed regulation

1/min: 350 Speed

Del. quantity cm3/

1000s.: 13.00...17.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.5 1000s.: (3.5)

Full-load speed regulation

Speed 1/min: 1350

Del. quantity cm3/

1000s.: 15.00...21.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 90.00...140.00

1000s.: 80.00 mind

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1200

mm: 6.10...6.90 mm: (5.80...7.20) TD travel

Shutoff

electromagnet Volt: 12 1/min: 800 3rd speed

mm: 3.20...3.60 TD travel mm: (2.70...4.10)

Shutoff

electromagnet Volt: 12 1/min: 500 4th speed

mm: 0.70...1.50 TD travel mm: (0.40...1.80)

Shutoff

electromagnet Volt: 12 1/min: 1100 6th speed

mm: 5.70...6.50 TD travel

mm: (5.40...6.80)

Shutoff	+ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
	† Del. quyntity cm3/: 62.5063.50
Supply-pump pressure characteristic:	1000s.: (60.0066.00)
	→ 20th speed 1/min; 500
1st speed 1/min: 500	+ Shutoff
Supply-pump	electromagnet Volt: 12
pressure bar: 2.903.50	Del. quantity cm3/: 59.5062.50
	1000s.: (57.5064.50)
Shutoff	10005.: (57.5064.50)
electromagnet Volt: 12	†
3rd speed 1/min: 800	<pre>+ Mech. shutoff:</pre>
Supply-pump	+ Mech. Abstellung:
pressure bar: 4.204.80	1
Shutoff	1st speed 1/min: 1200
electromagnet Volt: 12	Del. quantity cm3/: 0.003.00
4th speed 1/min: 1200	4000c . (0.00 7.00)
	1000s.: (0.003.00)
Supply-pump	+ Shutoff
pressure bar: 6.006.60	+ electromagnet volt: 12
Shutoff	+
electromagnet Volt: 12	<pre>+ Electr, shutoff:</pre>
Overlow quantity at overflow valve:	1st speed 1/min: 350
The same desired and the same factors	+ Del. quantity cm3/: 0.003.00
1st speed 1/min: 500	10005.: (0.003.00)
	† 10005.: (0.005.00)
Shutoff	†
electromagnet Volt: 12	† Idle delivery:
Overflow : 41.7083.40	† · .
quantity cm3/10s: (41.7083.40)	+ 1st speed 1/min: 350
2nd speed 1/min: 1250	Shutoff
Shutoff	+ electromagnet Volt: 12
electromagnet Volt: 12	+ Del. quantity cm3/: 13.0017.00
Overflow : 55.60139.00	+ 1000s.: (11.0019.00)
quantity cm3/10s: (55.60139.00)	+ Dispersion cm3/: 3.5
quality and 103. (33.00137.00)	1600s.: (3.5)
Dalasama arang and basalasas abas a	
Delivery-quant. and breakaway char.:	- 2nd speed 1/min: 420
	+ Shutoff
	+ electromagnet Volt: 12
2nd speed 1/min: 1400	† Del. quantity cm3/: 0.003.00
Shutoff	+ 1000s.: (0.003.00)
electromagnet Volt: 12	+ 3rd speed 1/min: 380
Del. quantity cm3/: 0.003.00	Shutoff
1000s.: (0.003.00)	+ electromagnet Volt: 12
5th speed 1/min: 1350	Del. quantity cm3/: 3.009.00
Shutoff	† 1000s.: (2.0010.00)
electromagnet Volt: 12	†
Del. quantity cm3/: 15.0021.00	+ Automatic starting fuel delivery:
1000s.: (12.0024.00)	+
8th speed 1/min: 1300	+ 1st speed 1/min: 150
Shutoff	+ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
Del. quantity cm3/: 33.0049.00	Del. quantity cm3/: 100.00150.00
1000s.: (31.0051.00)	4000c . (00.00
	† 1000s.: (90.00140.00)
9th speed 1/min: 1250	†
Shutoff	+ 2nd speed 1/min: 250
electromagnet Volt: 12	+ Shutoff
Del. quantity cm3/: 56.0059.00	+ electromagnet Volt: 12
1000s.: (54.0061.00)	+ Del. quantity cm3/: 25.0065.00
Shutoff	+ 1000S.: (25.0065.00)
electromagnet Volt: 12	1
12th speed 1/min: 800	4th speed 1/min: 100
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B17

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Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 90.00...140.00
1000s.: (80.00...130.00)

Shutoff electromagnet:

Cut—in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:
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Designation

K mm: KF mm: 5.2...5.5
MS mm: 1.5...1.7
SVS max. mn: 4.0
Ya mm: 37.9...39.9
Yb mm: 44.5...49.5

Remarks:

Overflow restriction 0.55 mm - Part No. ..303

Note inst. in remarks column

Test scheet : STE

: 12.66.92 Edition replaces : 18.02.91

Calibrating oil : ISO-4113

Injection pump : VE3/11F1200R263-1

Type number : 0 460 413 007

Customer-specific information

Customer : STEYR

: WD311-85 Engine

KW: 41 Power

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil •c return temp.

with thermometer: 40...48 Electronically : 42...50

Inlet press., bar: 0.35

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening

bar: 147...150 Pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00

x Length

mm: 840

Start of delivery

Indicator setting

Piston stroke mm: 1.0 Outlet : A

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1000 Speed

Setting value mm: 5.80...6.20

Supply-pump pressure

1/min: 1000 Speed

Setting value bar: 6.20...6.80

Full-load del. with charge press.:

1/min: 1000

Del. quantity cm3/

1000s.: 78.00...79.00

Dispersion cm3/: 3.5

1000s.: (3.5)

Low-idle speed regulation

1/min: 300 Speed

Del. quantity cm3/

1000s.: 11.00...15.00 Del. quantity cm3/: 3.5 1000s.: (3.5)

Full-load speed regulation

1/min: 1300 Speed

Del. quantity cm3/

1000s.: 17.00...23.00

Start:

1/min: 100 Speed

Del. quantity cm3/: 84.00...134.00 mind 1000s.: 84.00

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1200

mm: 6.90...7.70 TD travel

mm: (6.60...8.CO)

2nd speed 1/min: 1000

TD travel mm: 5.80...6.20

mm: (5.30...6.70)

1/min: 500 3rd speed

mm: 1.60...2.40 TD travel

mm: (1.30...2.70)

Supply-pump pressure characteristic:

1st speed 1/min: 1200

Supply-pump

bar: 7.00...7.60 pressure

1/min: 1000 2nd speed

Supply-pump

bar: 6.20...6.80 pressure

1/min: 500 3rd speed

Supply-pump

bar: 4.30...4.90 pressure

Overlow quantity at overflow valve:

cm3/10s: (41.70...83.40) quantity 1/min: 1200 2nd speed Overflow : 55.50...139.00 cm3/10s: (55.50...139.00) quantity Delivery quant. and breakaway char.: 1/min: 1350 2nd speed Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 1/min: 1300 3rd speed Del. quantity cm3/: 17.00...23.00 1000s.: (15.00...25.00) 4th speed 1/min: 1250 Del. quantity cm3/: 41.00...57.00 1000s.: (39.00...59,00)
5th speed 1/min: 1200
Del. quantity cm3/: 74.50...77.50
1000s.: (73.70...78.30) 1/min: 1000 6th speed Del. quantity cm3/: 78.00...79.00 1000s.: (76.20...80.80) 7th speed 1/min: 500 Del. quantity cm3/: 72.50...75.50 1000s.: (71.50...76.50) Mech. shutoff: Mech. Abstellung: 1/min: 1200 1st speed Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Idle delivery: 1000s.: (9.00...17.00) cm3/: 3.5 Dispersion 1000s.: (3.5) 2nd speed 1/min: 330 Del. quantity cm3/: 3.00...9.00 1000s.: (2.00...10.00) 3rd speed 1/min: 400 Del. quantity cm3/: 0.00...2.60 1000s.: (0.00...2.60) Automatic starting fuel delivery: 1st speed 1/min: 170 Del. quantity cm3/: 84.00...134.00 1000s.: (84.00...134.00) 2nd speed 1/min: 270 Del. quantity cm3/: 37.00...73.00 1000s.: (37.00...73.00)

1/min: 500

: 41.70...83.40

1st speed

Overflow

4th speed 1/min: 100 Del. quantity cm3/: 84.00...134.00 1**000s.:** (84.00...134.00) Shutoff electromagnet: Cut-in min voltage Rated voltage Mounting and assembly dimensions: Designation mm: 3.2...3.4 K KF mm: 5.6...6.0 mm: 1.2...1.6 MS mm: 5.0 SVS max. XK mm: 17.0...19.0 XL mm: 12.6...16.0 mm: 37.2...39.2 Ya mm: 50.1...58.3 Yb Remarks: Overflow restriction 0.55 mm - Part No. ..303

Note inst. in remarks column

Test scheet

: 12.06.92 Edition : 15.07.88 replaces : ISO-4113 Calibrating oil

: VE3/11F1200R263-2 Injection pump

: 0 460 413 008 Type number

Customer Part-No. :

Customer-specific information

Customer : STEYR

: WD308-47/48 Engine

KW: 31 Power

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil °C return temp.

with thermometer: 40...43 : 42...50 Electronically

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening |

bar: 147.00...150.00 Pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Indicator setting

Piston stroke mm: 1.0 **Outlet** : A

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1000

Setting value mm: 5.40...5.80

Supply-pump pressure

1/min: 1000 Speed

Setting value bar: 5.60...6.20

Full-load del. with charge press.:

1/min: 1000 Speed

Dei. quantity cm3/

1000s.: 57.50...58.50 cm3/: 3.5

Dispersion

1000s.: (3.5)

Low-idle speed regulation

1/min: 300 Speed

Del. quantity cm3/

1000s.: 14.00...18.00 Del. quantity cm3/: 3.5

1000s.: (3.5)

Full-load speed regulation

1/min: 1300 Speed

Del. quantity cm3/

1000s.: 8.00...14.00

Start:

Speed 1/min: 100 Del. quantity cm3/: 70.00...100.00

1000s.: 70.00

Inspection-pump test specifications

Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1200

mm: 6.70...7.50 TD travel

mm: (6.40...7.80)

3rd speed 1/min: 1000

TD travel

mm: 5.40...5.80 mm: (4.90...6.30)

1/min: 500 4th speed

mm: 0.70...1.50 TD travel

mm: (0.40...1.80)

Supply-pump pressure characteristic:

1/min: 1200 1st speed

Supply-pump

pressure bar: 6.50...7.10

1/min: 1000 2nd speed

Supply-pump

bar: 5.60...6.20 pressure

1/min: 500 3rd speed

Supply-pump

pressure bar: 3.60...4.20

Overlow quantity at overflow valve: 2nd speed 1/min: 250 Del. quantity cm3/: 36.00...46.00 1000s.: (36.00...46.00) 1/min: 500 1st speed : 41.70...83.40 Overflow *quantity* cm3/10s: (41.70...83.40) 2nd speed 1/min: 1200 4th speed 1/min: 100 Del. quantity cm3/: 70.00...100.00 Overflow : 55.60...139.00 cm3/10s: (55.60...139.00) quantity 1000s.: (70.00...100.00) Delivery-quant. and breakaway char.: Shutoff electromagnet: Cut-in 2nd speed 1/min: 1330 min voltage Del. quantity cm3/: 0.00...3.00 Rated voltage 1000s.: (0.00...3.00) 5th speed 1/min: 1300
Del. quantity cm3/: 8.00...14.00
1000S.: (6.00...16.00)
8th speed 1/min: 1250
Del. quantity cm3/: 29.00...45.00 Mounting and assembly dimensions: Designation mm: 3.2...3.4 KF mm: 5.6...6.0 1000s.: (27.00...47.00) MS mm: 1.2...1.6 1/min: 1200 9th speed SVS max. mm: 4.1 Det. quantity cm3/: 53.00...56.00 nm: 17.0...19.0 XiC 1000s.: (52.20...56.80) mm: 11.7...15.1 XL 1/min: 800 10th speed mm: 37.2...39.2 Ya Del. quantity cm3/: 56.00...59.00 1000s.: mm: 48.0...56.4 Yb 12th speed 1/min: 1000
Del. quyntity cm3/: 57.50...58.50
1000s.: (55.70...60.30)
20th speed 1/min: 500 Remarks: Overflow restriction 0.55 mm - Part No. Del. quantity cm3/: 49.50...52.50 ..303 1000s.: (48.50...53.50) Mech. shutoff: Mech. Abstellung: 1st speed 1/min: 1200 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Idle delivery: 1st speed 1/min: 300 Del. quantity cm3/: 14.00...18.00 1000s.: (12.00...20.00) cm3/: 3.5 Dispersion 1000s.: (3.5) 1/min: 330 2nd speed Del. quantity cm3/: 5.00...11.00 1000s.: (4.00...12.00) 1/min: 400 3rd speed Del. quantity cm3/: 0.00...2.60 1000s.: (0.00...2.60) Automatic starting fuel delivery: 1/min: 170 1st speed Del. quantity cm3/: 75.00...105.00 1000s.: (75.00...105.00)

Note inst. in remarks column

Test scheet : FIA : 05.06.92 Edition : 18.02.91 replaces Calibrating oil : ISO-4113

: VE4/11F1250L164 Injection pump Type number : 0 460 414 013

Customer-specific information Customer : IVECO-FIAT

: 8045.05.200 Engine

Power KW: 58

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil *C return temp.

with thermometer : 40...48 : 42...50 Electronically

Inlet press., bar: 0.35

Calibrating nozzle-holder

: 1 688 901 020 assembly

Openina

bar: 172...175 Pressure

Perforated-plate

diameter nan: 6.0

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Lenath

Start of delivery

mm: 0.2 Prestroke

(from BDC): +-0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 800 Speed

Setting value mm: 3.80...4.20

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 800 Speed

Setting value bar: 5.10...5.70

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 800 Speed

Del. quantity cm3/

1000s.: 73.50...74.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.5

1000s.: (4.0)

Low-idle speed regulation

1/min: 350 Speed

Del. quantity cm3/

1000s.: 21.00...25.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.5 1000s.: (3.5)

Full-load speed regulation

1/min: 1350 Speed

Del. quantity cm3/

1000s.: 29.00...35.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 90.00...140.00

mind 1000s.: 90.00

Shutoff

electromagnet Volt: 12

Inspection pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 500 1st speed

mm: 1.20...2.00 TD travel

mm: (0.90...2.30)

Shutoff electromagnet Volt: 12

1/min: 800 2nd speed

mm: 3.80...4.20 mm: (3.30...4.70) TD travel

Shutoff

electromagnet Volt: 12 3rd speed 1/min: 1250

B23

TD travel mm: 7.60...8.40 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 73.50...74.50 1000s.: (71.00...77.00) mm: (7.30...8.70)Shutoff electromagnet Volt: 12 1/min: 500 7th speed Supply-pump pressure characteristic: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 64.00...67.00 1000s.: (62.50...68.50) 1/min: 500 1st speed Supply-pump bar: 3.60...4.20 pressure Shutoff Mech. shutoff: electromagnet Volt: 12 2nd speed 1/min: 800 Mech. Abstellung: Supply-pump bar: 5.10...5.70 pressure Shutoff 1000s.: (0.00...3.00) electromagnet Volt: 12 3rd speed 1/min: 1250 Shutoff electromagnet volt: 12 Supply-pump bar: 7.00...7.60 pressure Electr. shutoff: Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1/min: 500 1st speed Idle delivery: Shutoff electromagnet Volt: 12 1/min: 350 1st speed : 55.50...139.00 Overflow Shutoff cm3/10s: (55.50...139.00) quantity electromagnet Volt: 12 Del. quantity cm3/: 21.00...25.00 1000s.: (19.00...27.00) Dispersion cm3/: 3.5 1000s.: (3.5) 2nd speed 1/min: 425 2nd speed 1/min: 1250 Shutoff electromagnet Volt: 12 : 55.50...139.00 Overflow | quantity cm3/10s: (55.50...139.00) Shutoff electromagnet Volt: 12 Del. quantity cm3/: 1.00...7.00 1000\$.: (0.00...8.00) Delivery quam. and breakaway char.: 1/min: 1430 2nd speed 3rd speed 1/min: 500 Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...1.00 1000s.: (0.00...1.00) electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 3rd speed 1/min: 1380 3rd speed Shutoff Automatic starting fuel delivery: electromagnet Volt: 12 Del. quantity cm3/: 4.00...20.00 1/min: 150 1st speed 1000s.: (4.00...12.00) 1/min: 1350 Shutoff 4th speed electromagnet Volt: 12 Del. quantity cm3/: 90.00...140.00 1000s.: (90.00...140.00) Shutoff 2nd speed 1/min: 250 Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 Del. quantity cm3/: 68.50...71.50 Del. quantity cm3/: 47.00...67.00 1000s.: (47.00...67.00) 1000s.: (67.00...73.00) 6th speed 1/min: 800 4th speed 1/min: 100

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 90.00...140.00 1000s.: (90.00...140.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 : 12.0 Rated voltage

Mounting and assembly dimensions:

Designation

K mm: -

mm: 5.3...5.7 KF MS mm: 1.4...1.8 SVS max. mm: 4.6

mm: 37.9...39.9 Ya Yb mm: 44.1...49.1

Remarks:

Overflow restriction 0.55 mm - Part No. ..303

Tractor (tractor engines)

Note inst. in remarks column

Test scheet : FIA

Edition : 05.06.92 : 03.84 replaces Calibrating oil : ISO-4113

Injection pump : VE4/11F1250L164-1 : 0 450 414 015 Type number

Customer Part-No. :

Customer-specific information Customer : IVECO-FIAT

: 8045.06.200 Engine

KW: 53 Power

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 020

Openina

bar: 172.00...175.00 Pressure

Test inj. tubing : Lochduese 0,6 mm

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.2

(from BDC): +0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 800

Setting value mm: 1.90...2.30

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 800 Speed

Setting value bar: 3.70...4.30

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 800 Speed

Del. quantity cm3/ 1909s.: 67.00...68.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0 1000s.: (4.0)

Low-idle speed regulation

1/min: 350

Del. quantity cm3/

1000s.: 23.00...27.00

Shucoff

electromagnet Volt: 12 Del. quantity cm3/: 3.5 1000s.: (3.5)

Full-load speed regulation

1/min: 1365 Speed

Del. quantity cm3/

1000s.: 29.00...35.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 90.00...140.00

mind 1000s.: 90.00

Shutoff

electromagnet Volt: 12

Inspection pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1100 2nd speed

mm: 4.80...5.60 TD travel mn: (4.50...5.90)

Shutoff

electromagnet Volt: 12 1/min: 800 3rd speed

TD travel mm: 1.90...2.30 mm: (1.40...2.80)

Shutoff

electromagnet Volt: 12 1/min: 600 4th speed

mm: 0.20...0.80 mm: (-0.10...1.10) TD travel Shutoff electromagnet Volt: 12 Del. quantity cm3/: 59.50...62.50 1000s.: (58.00...64.00) Shutoff electromagnet Volt: 12 5th speed 1/min: 1250 1/min: 800 12th speed mm: 5.30...6.10 TD travel Shutoff electromagnet Volt: 12
Del. quyntity cm3/: 67.00...68.00
1000s.: (64.50.70.50)
20th speed 1/min: 500 mm: (5.00...5.40) Shutoff electromagnet Volt: 12 Supply-pump pressure characteristic: Shutoff electromagnet Volt: 12
Del. quantity cm3/: 60.50...63.50
1000s.: (59.00...65.00) 1/min: 600 1st speed Supply-pump pressure bar: 2.90...3.50 Shutoff Mech. shutoff: electromagnet Volt: 12 3rd speed 1/min: 800 Mech. Abstellung: 3rd speed Supply-pump 1/min: 1250 1st speed bar: 3.70...4.30 Del. quantity cm3/: 0.00...3.00 pressure 1000s.: (0.00...3.00) Shutoff electromagnet Volt: 12 Shutoff 1/min: 1250 4th speed electromagnet volt: 12 Supply-pump bar: 6.00...6.60 pressure Electr. shutoff: Shutoff electromagnet Volt: 12 1000s.: (0.00...3.00) Overlow quantity at overflow valve: 1/min: 500 1st speed Idle delivery: Shutoff electromagnet Volt: 12 1st speed 1/min: 350 : 41.70...83.40 Overflow Shutoff electromagnet Volt: 12
Del. quantity cm3/: 23.00...27.00
1000S.: (21.00...29.00)
Dispersion cm3/: 3.5
1000S.: (3.5)
2nd speed 1/min: 480 quantity cm3/10s: (41.70...83.40) 2nd speed 1/min: 1250 Shutoff electromagnet Volt: 12 Overflow : 55.60...139.00 cm3/10s: (55.60...139.00) quantity Shutoff Delivery-quant. and breakaway char.: electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 1/min: 1430 1/min: 425 2nd speed 3rd speed Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 2.00...8.00 1000s.: (1.00...9.00) electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 1/min: 1395 3rd speed Shutoff Automatic starting fuel delivery: 1st speed 1/min: 150 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 90.00...140.00 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 29.00...35.00 1000S.: (26.00...38.00) 1000s.: (90.00...140.00) 1/min: 250 2nd speed 1/min: 1250 9th speed

Shutoff

electromagnet Volt: 12
Del. quantity cm3/: 40.00...60.00
1000s.: (40.00...60.00)

1/min: 100 4th speed

Shutoff

electromagnet Voit: 12

Del. quantity cm3/: 90.00...140.00 1000s.: (90.00...140.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: -

KF mm: 5.2...5.4 MS mn: 1.5...1.7 SVS max. mm: 4.3

mm: 37.9...39.9 mm: 43.6...48.6 Ya Yb

Remarks:

Overflow restriction 0.55 mm - Part No.

Tractor (tractor engines)

Note inst. in remarks column

Test scheet : F

Edition : 10.06.92 replaces : 09.05.89 Calibrating oil : ISO-4113

Injection pump : VE4/11F2250R228 Type number : 0 460 414 029

Customer—specific information Customer : PERKINS

Engine : PRIMA 4.20

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.35

Calibrating nozzle-holder

assembly : 1 688 901 022

Opening |

Pressure bar: 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Start of delivery block Piston stroke mm: 1.37

mm: +0.02(0.06)

Outlet : A

Injection-pump setting values Test specifications in parentheses

Timing device travel

Speed 1/min: 1800

Setting value mm: 3.20...3.60

AFB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1800

Setting value bar: 6.20...6.80

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 500

Del. quantity cm3/

1000s.: 19.00...20.00 F

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0 1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 1000

Del. quantity cm3/

1000s.: 42.80...43.80 E

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0 1000s.: -

Low-idle speed regulation

Speed 1/min: 400

Del. quantity cm3/

1000s.: 8.00...10.00

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.0 1000s.: -

Full-load speed regulation

Speed 1/min: 2500

Del. quantity cm3/

1000s.: 23.50...25.50

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 70.00...100.00

mind 1000s.: 55.00

KSB/AFB

Valve Volt: 12

Shutoff	4	
electromagnet Volt: 12	+	1st speed 1/min: 500
•	+	KSB/AFB
Inspection-pump test specifications	+	valve Volt: 12
Test specifications in parentheses	+	Shutoff
	+	electromagnet Volt: 12
Timing-device characteristic:	+	Overflow : 41.7083.40
	+	quantity cm3/10s: (41.7083.40)
1st speed 1/min: 500	+	2nd speed 1/min: 2250
TD travel mm: 2.302.50 A	+	KSB/AFB
mm: (1.603.20) A	+	valve Volt: 12
electromagnet Volt: 12	+	Shutoff
2nd speed 1/min: 1200	+	electromagnet Volt: 12
TD travel mm: 2.104.10 B	+	Overflow : 55.60139.00
mm: (1.904.30) B	+	quantity cm3/10s: (55.60139.00)
Shutoff	+	•
electromagnet Volt: 12	+	Delivery quant. and breakaway char.:
3rd speed 1/min: 1500	+	• • • • • • • • • • • • • • • • • • • •
TD travel mm: 1.602.40	1	
mm: (1.302.70)	+	1nd speed 1/min: 2250
KSB/AFB	+	HBA-stroke mm: 10.4
valve Volt: 12	1	KSB/AFB
Shutoff	+	valve Volt: 12
electromagnet Volt: 12	1	Shutoff
4th speed 1/min: 1800	1	electromagnet Volt: 12
TD travel mm: 3.203.60	1	Del. quantity cm3/: 57.5062.50 D
mm: (2.804.00)	1	1000S.: (56.5063.50) D
KSB/AFB	1	2nd speed 1/mir.: 2600
valve Volt: 12	1	KSB/AFB
Shutoff	1	valve Volt: 12
electromagnet Volt: 12	1	Shutoff
5th speed 1/min: 2250	1	electromagnet Volt: 12
TO travel mm: 4.605.40	1	Del. quantity cm3/: 0.0015.00
mm: (4.305.70)	1	10008.: (0.0015.00)
KSB/AFB	1	3rd speed 1/min: 2500
valve Volt: 12	1	KSB/AFB
Shutoff	Ţ	valve Volt: 12
electromagnet Volt: 12	1	Shutoff
Cooti singitor voter in	1	electromagnet Volt: 12
Supply-pump pressure characteristic:	I	Del. quantity cm3/: 23.5025.50
copy pump pressure enaracter astro.	Ι	1000s.: (20.5028.50)
1st speed 1/min: 1000	Ι	4th speed 1/min: 1000
Supply-pump	Ι	KSB/AFB
pressure bar: 4.304.90	Ι	valve Volt: 12
KSB/AFB	Ι	Shutoff
valve Volt: 12	Ι	electromagnet Volt: 12
Shutoff	Ι	Del. quantity cm3/: 42.8043.80 E
electromagnet Volt: 12	I	1000s.: (39.8046.80) E
2nd speed 1/min: 1800	Τ	5th speed 1/min: 500
Supply-pump	Ι	KSB/AFB
pressure bar: 6.206.80	Ι	valve Volt: 12
KSB/AFB	Ι	Shutoff
valve Volt: 12	T	electromagnet Volt: 12
Shutoff	Ι	Del. quantity cm3/: 19.0020.00 F
electromagnet Volt: 12	Ι	1000S.: (17.0020.00 F
3rd speed 1/min: 2250	Ι	10003 (17.0022.00) F
Supply—pump	I	Mech. shutoff:
pressure bar: 7.408.00	T	neur. Shuturi
Pressure part r.400.00	T	Electr chuteff:
Overlow quantity at owneff or value	T	Electr. shutoff:
Overlow quantity at overflow valve:	+	

C02

1/min: 400 1st speed Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) KSB/AFB valve Volt: 12 Idle delivery: 1/min: 400 1st speed KSB/AFB Volt: 12 valve Shutof# electromagnet Volt: 12 Del. quantity cm3/: 8.00...10.00 1000s.: (5.00...13.00) cm3/: 3.0Dispersion 1000s.: -1/min: 500 2nd speed KSB/AFB Volt: 12 valve Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...4.00 1000s.: -Automatic starting fuel delivery: 1/min: 300 1st speed KSB/AFB Volt: 12 valve Shutoff electromagnet Volt: 12 Del. quantity cm3/: 20.00...40.00 1000s.: (20.00...40.00) Shutoff electromagnet: Cut-in min voltage : 10.0 : 12.0 Rated voltage Mounting and assembly dimensions: Designation mm: 3.2...3.4 K KF mm: K-OT MS mm: 1.1...1.5 SVS max. mm: 6.0 mm: 20.0...22.0 XK XL mm: 10.4...13.8 mm: 37.0...39.0 Ya mm: 51.1...62.4 Yb Remarks: A = KSB adjustment point B = KSB curve point

F = Adjustment point for low full-load

delivery
E = Fuel-delivery adjustment point in
HBA range. (Correction by way of HBA
adjusting screw).
D = Adjustment point for high fullload delivery

Note inst. in remarks column

Test scheet : VOL

: 11.06.92 Edition replaces : 03.12.86 Calibrating oil : ISO-4113

Injection pump : VE4/11F1300L251 Type number : 0 460 414 037

Customer Part-No. :

Customer-specific information Customer : VOLVO-PENTA

Engine

: TD 31

Power

KW: 49

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer: 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 022

Openina |

bar: 130.00...133.00 Pressure

Test inj. tubing : motornah

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Start of delivery

Prestroke mm: 0.2

(from BDC): +-0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing device travel

1/min: 1100 Speed Charge press. hPa: 1000

mm: 1.40...1.80 Setting value

Supply-pump pressure

1/min: 1100 Speed Charge press hPa: 1000

Setting value bar: 4.80...5.40

Full-load del. with charge press.:

1/min: 1100 Speed Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 66.50...67.50 Dispersion cm3/: 3.0 1000s.: (3.5)

Full-load del. w/out charge press.:

Speed 1/min: 600

Del. quantity cm3/

1000s.: 45.00...46.00

Low-idle speed regulation

1/min: 350 Speed

Del. quantity cm3/

1000s.: 18.00...22.00 Del. quantity cm3/: 3.0 1000s.: (3.5)

Full-load speed regulation

Speed 1/min: 1400 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 20.00...26.00

Start:

Speed 1/min: 100 Del. quantity cm3/: 70.00...110.00

1000s.: 70.00 mind

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1300 hPa: 1000 Charge press

mm: 2.30...3.10 TD travel

mm: (2.00...3.40)

1/min: 1100 3rd speed Charge press hPa: 1000

mm: 1.40...1.80 TD travel mm: (0.90...2.30)

1/min: 900 4th speed hPa: 1000 Charge press

mm: 0.30...1.10 TD travel

mm: (0.10...1.30)

Supply-pump pressure characteristic:

Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 1st speed 1/min: 600 Charge press. hPa: 1000 Supply-pump pressure bar: 2.80...3.40 2nd speed 1/min: 1100 Charge press. hPa: 1000 Idle delivery: Supply-pump 1000s.: (16.00...24.00) cm3/: 3.0 1000s.: (3.5) pressure bar: 4.80...5.40 3rd speed 1/min: 1300 Dispersion Charge press. hPa: 1000 2nd speed 1/min: 380
Del. quantity cm3/: 4.50...11.50
1000s.: (4.00...12.00) Supply-pump bar: 5.60...6.20 pressure Overlow quantity at overflow valve: 1/min: 420 3rd speed Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 1st speed 1/min: 600 Charge press. hPa: 1000 : 41.70...83.40 Overflow Automatic starting fuel delivery: cm3/10s: (41.70...83.40) quantity 1st speed 1/min: 250 Del. quantity cm3/: 75.00...105.00 1000s.: (75.00...105.00) 1/min: 1250 2nd speed Charge press. hPa: 1000 : 55.60...139.00 Overflow cm3/10s: (55.60...139.00) quantity 1/min: 450 2nd speed Del. quantity cm3/: 43.00...58.00 1000s.: (43.00...58.00) Delivery-quant. and breakaway char.: 4th speed 1/min: 100 Del. quantity cm3/: 70.00...110.00 1000S.: (70.00...110.00) 1nd speed 1/min: 900 Charge-air pressure-setting point hPa: 300 Del. quantity cm3/: 55.50...56.50 1000s.: (53.70...58.30) Mounting and assembly dimensions: 1/min: 1480 3rd speed Charge press. hPa: 1000 Designation Del. quantity cm3/: 0.00...6.00 K mm: -1000s.: (0.00...6.00) mm: 5.6...6.0 mm: 1.1...1.5 KF 1/min: 1400 5th speed 5th speed 1/min: 1400
Charge press. hPa: 1000
Del. quantity cm3/: 20.00...26.00
1000S.: (18.50...27.50)
9th speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm3/: 65.50...68.50
1000S.: (64.00...70.00)
12th speed 1/min: 1100
Charge press. hPa: 1000
Del. quyntity cm3/: 66.50...67.50
1000S.: (64.70...69.30) MS mm: 36.2...40.2 mm: 43.7...52.3 Ya Yb Remarks: Pushing electromagnet. * Correction at adjusting nut (46) 1000s.: (64.70...69.30) 18th speed 1/min: 600 Del. quantity cm3/: 45.00...46.00 1000s.: (43.20...47.80) 20th speed 1/min: 600 Charge press. hPa: 1000 Del. quantity cm3/: 54.50...58.50 1000s.: (53.50...59.50) Mech. shutoff: Mech. Abstellung: 1/min: 1480 1st speed C05

Note inst. in remarks column

Test scheet

Edition : 12.06.92 : 03.08.88 replaces Calibrating oil : ISO-4113

Injection pump

: VE4/11F1350R257

Type number

: 0 460 414 039

Customer Part-No. :

Customer—specific information : IVECO-FIAT

Customer

Engine

: 8040.25.200+220

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil

return temp. °C

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 020 assembly

Opening

bar: 172.00...175.00 Pressure

Perforated plate

diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00

mm: 840 x Length

Start of delivery

mm: 0.4 Prestroke

(from BDC): +-0.02(0.04)

Indicator setting

Piston stroke mm: 1.0

Outlet

Injection-pump setting values

Test specifications in parentheses

Timing-device travel

1/min: 1000 Charge press. hPa: 1000

Setting value mm: 3.80...4.20

Shutoff

electromagnet Volt: 24

Supply-pump pressure

1/min: 1000 Speed

Charge press hPa: 1000

Setting value bar: 5.70...6.30

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

1/min: 800 Speed

Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 95.00...96.00

Shutoff

electromagnet Volt: 24

cm3/: 4.0 Dispersion

1000s.: (5.0)

Full-load del. w/out charge press.:

1/min: 500 Speed

Del. quantity cm3/

1000s.: 68.50...69.50

Shutoff

electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 350

Del. quantity cm3/

1000s.: 22.00...26.00

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 3.5 1000s.: (4.0)

Full-load speed regulation

1/min: 1500 Speed

Charge press hPa: 1000

Del. quantity cm3/

1000s.: 34.00...40.00

Start:

Speed 1/min: 100 Del. quantity cm3/: 90.00...140.00

1000s.: 90.00 mind

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

	+	Shutoff	
Timing-device charac	cteristic:	<pre>electromagnet Volt: Overflow :</pre>	24 55 60 139 00
2nd speed 1/min:	1350	quantity cm3/10s:	
Charge press hPa:		420.70 toy 0.00 t	(3)(00)(1)(0)(0)
TO travel mm:	6.307.10 (6.007.40)	Delivery-quant. and	breakaway char.
Shutoff	1		
electromagnet Volt:	24	1nd speed 1/min:	500
3rd speed 1/min:		Charge-air pressure	
Charge press hPa:		point hPa:	
	3.804.20	LDA-stroke ma:	
	(3.304.70)	Shutoff	3.0
Shutoff	(3.304.70)		2/.
electromagnet Volt:	24	electromagnet Volt:	70.00 00.00
4th speed 1/min:		Del. quantity cm3/:	(7.0000.00 (75.50 07.50)
			(75.5083.50)
Charge press hPa:	1000	3rd speed 1/min:	
	1.702.50	Charge press. hPa:	1000
	(1.402.80)	Shutoff	
Shutoff	<u>.</u> . †	electromagnet Volt:	
electromagnet Volt:	24	Del. quantity cm3/:	0.003.00
	+	10 0 0s.:	(0.003.00)
Supply-pump pressure	characteristic:	5th speed 1/min:	1500
	+	Charge press. hPa:	
1st speed 1/min:	500	Shutoff	
Charge press. hPa:		electromagnet Volt:	24
Supply-pump		Del. quantity cm3/:	34 00 40 00
pressure bar:	3.604.20	10005	(31.0043.00)
Shutoff	1	9th speed 1/min:	
electromagnet Volt:	24	Charge press. hPa:	
2nd speed 1/min:			1000
		Shutoff	2/
Charge press. hPa:	1000	electromagnet Volt:	24
Supply-pump	/ 20 F / 2	Del. quantity cm3/:	
	4.805.40		(87.0094.00)
Shutoff	†	12th speed 1/min:	
electromagnet Volt:	+	Charge press. hPa:	1000
3rd speed 1/min:		Shutoff	
Charge press. hPa:	1000 +	electromagnet Volt:	
Supply-pump	+	Del. quyntity cm3/:	95.0096.00
	5.706.30		(92.0099.00)
Shutoff	+	18th speed 1/min:	500
electromagnet Volt:	24 +	Shutoff	
4th speed 1/min:	1350	electromagnet Volt:	24
Charge press. hPa:	1000 +	Del. quantity cm3/:	
Supply-pump	 		(65.5072.50)
	7.007.60	20th speed 1/min:	
Shutoff		Charge press. hPa:	
electromagnet Volt:	24	Shutoff	1000
order diagnet votes	1	electromagnet Volt:	2/
Overlow quantity at	overflow valve:	Del. quantity cm3/:	
over tow quarterty at	T		(86.5092.50)
1st speed 1/min:	500	10003.1	(00.0072.)0)
		Mach shipess	
Charge press. hPa: Shutoff	†	Mech. shutoff:	
	7,	Mech. Abstellung:	
electromagnet Volt:		A	4750
	41.7083.40	1st speed 1/min:	
	(41.7083.40)	Charge press. hPa:	1000
2nd speed 1/min:		Del. quantity cm3/:	U.003.00
Charge press. hPa:	7(XX) +	1000s	(0.003.00)

Shutoff electromagnet volt: 24 Electr. shutoff: 1/min: 350 1st speed Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Idle delivery: 1st speed 1/min: 350 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 22.00...26.00 1000s.: (19.00...29.00) cm3/: 3.5 1000s.: (4.0) Dispersion 1/min: 400 2nd speed Shutoff electromagnet Volt: 24 Del. quantity cm3/: 2.50...9.50 1000s.: (2.50...9.50) 3rd speed 1/min: 430 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Automatic starting fuel delivery: 1st speed 1/min: 150 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 90.00...140.00 1000s.: (90.00...140.00) 2nd speed 1/min: 250 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 40.00...60.00 1000s.: (40.00...60.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 90.00...140.00 1000s.: (90.00...140.00) Shutoff electromagnet: Cut-in min voltage : 20.0 : 24.0 Rated voltage Mounting and assembly dimensions: mm: 5.1...5.5 KF

mm: 1.2...1.6 mm: 5.3 XK mm: 17.0...19.0 XL mm: 14.2...17.6 Ya mm: 37.9...39.9 Yb mm: 45.4...50.7

Remarks:

Overflow restriction 0.55 mm - Part No.

..303 :

* Correction at adjusting nut (46)

CO8

MS SVS max.

Note inst. in remarks column

Test scheet : FIA

Edition : 12.06.92 : 03.08.88 replaces Calibrating oil : ISO-4113

: VE4/11F1500R264 Injection pump : 0 460 414 040 Type number

Customer Part-No. :

Customer-specific information : IVECO-FLAT Customer

: 8040.05.200 Engine

Power KW: 65

TEST BENCH REQUIREMENTS

Calibrating oil

return temp.

with thermometer: 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 020 assembly

Opening |

Pressure bar: 172.00...175.00

Perforated plate

diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

mm: 0.2 Prestroke

 $(from BDC): \leftarrow 0.02(0.04)$

Indicator setting

Piston stroke mm: 1.0 Outlet

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1000 Speed

Setting value mm: 3.50...3.90

Shutoff

electromagnet Volt: 24

Supply-pump pressure

1/min: 1000 Speed

Setting value bar: 4.50...5.10

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

1/min: 1000

Del. quantity cm3/ 1000s.: 55.00...56.00

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 3.5 1000s.: (3.5)

Low-idle speed regulation

1/min: 325 Speed

Del. quantity cm3/

1**000s.:** 7.00...11.06

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 3.5 1000s.: (3.5)

Full-load speed regulation

1/min: 1600 Speed

Del. quantity cm3/ 1000s.: 38.00...44.00

Start:

1/min: 100 Speed

Del. quantity cm3/: 60.00...110.00

1000s.: 60.00 mind

Shutoff

electromagnet Volt: 24

Inspection pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1500 2nd speed

mm: 6.20...7.00 TD travel

mm: (5.90...7.30)

Shutoff

electromagnet Volt: 24 1/min: 1000 3rd speed

TD travel mm: 3.50...3.90

mm: (3.00...4.40)

Shutoff	+ Del. quantity cm3/: 38.0044.00
electromagnet Volt: 24	+ 1000s.: (35.0047.00)
4th speed 1/min: 700	+ 9th speed 1/min: 1500
TD travel mm: 0.601.40	+ Shutoff
mn: (0.301.70)	+ electromagnet Volt: 24
Shutoff	+ Del. quantity cm3/: 51.5054.50
electromagnet Volt: 24	+ 1000s.: (50.0056.00)
5th speed 1/min: 1300	+ 10th speed 1/min: 1300
TD travel mm: 5.806.40	+ Shutoff
mm: (5.406.80)	+ electromagnet Volt: 24
Shutoff	+ Del. quantity cm3/: 51.0054.00
electromagnet Volt: 24	+ 1000s.: (49.5055.50)
	+ 12th speed 1/min: 1000
Supply-pump pressure characteristic:	Shutoff
	electromagnet Volt: 24
2nd speed 1/min: 700	Pel. quyntity cm3/: 55.0056.00
Supply-pump	+ 1000s.: (52.5058.50)
pressure bar: 3.203.80	+ 20th speed 1/min: 700
Shutoff	+ Shutoff
electromagnet Volt: 24	+ electromagnet Volt: 24
3rd speed 1/min: 1000	Del. quantity cm3/: 53.0056.00
Supply-pump	1000s.: (51.5057.50)
pressure bar: 4.505.10	10003 (31.3031.30.
Shutoff	T Mech. shutoff:
electromagnet Volt: 24	
4th speed 1/min; 1500	+ Mech. Abstellung:
	T 10t mood 1/min 1500
Supply-pump pressure bar: 6.306.90	+ 1st speed 1/min: 1500
pressure bar: 6.306.90 Shutoff	- Del. quantity cm3/: 0.003.00
	10008.: (0.003.00)
electromagnet Volt: 24	+ Shutoff
Amalan mantitude at another and	+ electromagnet volt: 24
Overlow quantity at overflow valve:	
data and district 700	† Electr. shutoff:
1st speed 1/min: 700	† 4
Shutoff	1st speed 1/min: 325
electromagnet Volt: 24	+ Del. quantity cm3/: 0.003.00
Overflow : 41.7083.40	† 1000s.: (0.003.00)
quantity cm3/10s: (41.7083.40)	† <u></u>
2nd speed 1/min: 1500	† Idle delivery:
Shutoff	†
electromagnet Volt: 24	† 1st speed 1/min: 325
Overflow : 55.60139.00	+ Shutoff
quantity cm3/10s: (55.60139.00)	+ electromagnet Volt: 24
	+ Del. quantity cm3/: 7.0011.00
Delivery—quant. and breakaway char.:	+ 1000s.: (5.0013.00)
	+ Dispersion cm3/: 3.5
	† 1000s.: (3.5)
2nd speed 1/min: 1660	+ 2nd speed 1/min: 360
Shutoff	+ Shutoff
electromagnet Volt: 24	+ electromagnet Volt: 24
Del. quantity cm3/: 18.0026.00	† Del. quantity cm3/: 1.507.50
1000s.: (17.0027.00)	† 1000s.: (0.508.50)
3rd speed 1/min: 1700	+ 3rd speed 1/min: 420
Shutoff	+ Shutoff
electromagnet Volt: 24	+ electromagnet Volt: 24
Del. quantity cm3/: 0.003.00	+ Del. quantity cm3/: 0.003.00
1000s.: (0.003.00)	+ 1000s.: (0.003.00)
5th speed 1/min: 1600	+
Shutoff	+ Automatic starting fuel delivery:
electromagnet Volt: 24	-
— · · · · · · · · · · · · · · · · · · ·	•

1/min: 150 1st speed Shutoff electromagnet Volt: 24
Del. quantity cm3/: 65.00...95.00
1000s.: (65.00...95.00) 2nd speed 1/min: 230 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 5.00...25.00 1000s.: (5.00...25.00) 1/min: 100 4th speed Shutoff electromagnet Volt: 24 Del. quantity cm3/: 60.00...110.00 1000s.: (50.00...110.00) Shutoff electromagnet: Cut-in min voltage : 20.0 : 24.0 Rated voltage Mounting and assembly dimensions: Designation K mn: mm: 5.2...5.5 KF mm: 1.7...2.1 MS SVS max. mm: 4.6 mm: 17.0...19.0 XK ma: 13.1...16.5 XL Ya mn: 37.9...39.9 mm: 42.9...48.3 Yb Remarks: :

Note inst. in remarks column

Test scheet : PER

Edition : 12.06.92 : 20.07.87 replaces Calibrating oil : ISO-4113

Injection pump : VE4/11F1500R266 : 0 460 414 041 Type number

Customer Part-No. :

Customer-specific information Customer : PERKINS

Engine : 500 HYDROVAN

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening

Pressure bar: 130.00...133.00

Test inj. tubing : motornah

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Start of delivery

Prestroke mm: 0.5

(from BDC): +-0.02(0.04)

Indicator setting

Piston stroke mm: 1.42 **Outlet** : A

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1100

Setting value mm: 2.40...2.80

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1100 Speed

Setting value bar: 4.90...5.50

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 600 Speed

Del. quantity cm3/

1000s.: 25.00...26.00

Shutoff

electromagnet Volt: 12 cm3/: 3.5 Dispersion

1000s.: (3.5)

Low-idle speed regulation

1/min: 350 Spe€d

Del. quantity cm3/

1000s.: 11.00...15.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.0 1000s.: (3.0)

Full-load speed regulation

Speed 1/min: 1600

Del. quantity cm3/ 1000s.: 12.00...18.00

Start:

1/min: 100 Speed

Del. quantity cm3/: 70.00...100.00 mind 1000s.: 70.00

Shutoff

electromagnet Volt: 12

Inspection pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1500

TD travel mm: 3.70...4.50

mm: (3.40...4.80)

Shutoff

electromagnet Volt: 12 1/min: 1100 3rd speed

mm: 2.40...2.80 TD travel

mm: (1.90...3.30)

Shutoff

electromagnet Volt: 12 4th speed 1/min: 700

TD travel mm: 0.40...1.20 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 49.50...52.50 mm: (0.10...1.50) Shutoff 1000s.: (48.00...54.00) electromagnet Volt: 12 1/min: 1350 5th speed 11th speed 1/min: 800 mm: 3.40...4.20 TD travel Shutoff electromagnet Volt: 12 Del. quantity cm3/: 35.00...37.00 1000s.: mm: (3.10...4.50) Shutoff electromagnet Volt: 12 1/min: 600 12th speed Supply-pump pressure characteristic: Shutoff electromagnet Volt: 12 Del. quyntity cm3/: 25.00...26.00 1000S.: (23.00...28.00) 1/min: 700 1st speed Supply-pump pressure bar: 3.50...4.10 Shutoff Mech. shutoff: electromagnet Volt: 12 1/min: 1100 2nd speed Electr. shutoff: Supply-pump bar: 4.90...5.50 pressure 1st speed 1/min: 350 Shutoff Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) electromagnet Volt: 12 1/min: 1500 3rd speed Supply-pump Idle delivery: pressure bar: 6.40...7.00 Shutoff 1st speed 1/min: 350 electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 11.00...15.00 1000s.: (9.00...17.00) Overlow quantity at overflow valve: cm3/: 3.01st speed 1/min: 600 Dispersion Shutoff 1000s.: (3.0) 1/min: 400 electromagnet Volt: 12 2rd speed Overflow : 41.70...83.40 Shutoff electromagnet Volt: 12
Del. quantity cm3/: 3.00...9.00
1000S.: (1.50...10.50) cm3/10s: (41.70...83.40) quantity 1/min: 1500 2nd speed Shutoff 1/min: 460 3rd speed electromagnet Volt: 12 : 55.60...139.00 Shutoff Overflow cm3/10s: (55.60...139.00) quantity electromagnet Volt: 12 Del. quantity cm3/: 0.00...5.00 Delivery-quant. and breakaway char .: 1000s.: (0.00...5.00) Automatic starting fuel delivery: 3rd speed 1/min: 1650 Shutoff 1st speed 1/min: 300 electromagnet Volt: 12
Del. quantity cm3/: 0.00...3.00
1000s.: (0.00...3.00)
5th speed 1/min: 1600 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 36.00...52.00 1000s.: (36.00...52.00) Shutoff electromagnet Volt: 12 Del. quantity cm3/: 12.00...18.00 1000s.: (10.00...20.00) 1/min: 400 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 27.50...42.50 1000s.: (27.50...42.50) 1/min: 1500 9th speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 48.50...51.50 1000s.: (47.00...53.00) 4th speed 1/min: 100 Shutoff 1/min: 1100 10th speed electromagnet Volt: 12

Del. quantity cm3/: 70.00...100.00 1000s.: (70.00...100.00)

Shutoff electromagnet:

Cut-in

mir. voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: -KF mm: K-OT MS mm: 1.2..1.45 SVS max. mm: 3.8 mm: 28.5...30.5 mm: 59.7...70.1 Ya

Yb

Remarks:

: Overflow restriction 0.55 mm - Part No. ..303

Note inst. in remarks column

Test scheet

: 12.06.92 Edition : 07.11.88 replaces Calibrating oil : ISO-4113

Injection pump : VE4/11F2250R274 : 0 460 414 045 Type number

Customer Part-No.:

Customer-specific information Customer : PERKINS

: MARINE TC 4500 Engine

Power KW: 60

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil °C return temp.

with thermometer: 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening

bar: 130.00...133.00 Pressure

Test inj. tubing : motornah

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Start of delivery

Indicator setting

Piston stroke mm: 1.28 Outlet : A

Injection-pump setting values Test specifications in parentheses

Timing device travel

1/min: 1500 Speed Charge press. hPa: 800

Setting value mm: 4.20...4.60

Supply-pump pressure

1/min: 1500 Speed

Charge press hPa: 800 Setting value bar: 7.10...7.70

Full-load del. with charge press.:

1/min: 1500 Speed Charge press. hPa: 800

Del. quantity cm3/

1000s.: 61.00...62.00

cm3/: 4.0Dispersion

1000s.: (4.0)

Fuil-load del. w/cut charge press.:

Speed 1/min: 600 Del. quantity cm3/

1000s.: 15.00...16.00

Dispersion cm3/: 4.0

1000s.: (4.0)

Low-idle speed regulation

1/min: 400 Speed

Del. quantity cm3/ 1000s.: 10.00...12.00

Del. quantity cm3/: 3.0 10005.: (3.0)

Full-load speed regulation

1/min: 2500 Speed Charge press hPa: 800

Del. quantity cm3/

1000s.: 24.00...26.00

Start:

Speed 1/min: 100

Del. quantity cm3/: 62.00...98.00

1000s.: 62.00

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

3rd speed 1/min: 1500 hPa: 800 Charge press

mm: 4.20...4.60 TD travel mm: (3.70...5.10)

1/min: 1000 4th speed

Charge press hPa: 800

mm: 1.20...2.00 TD travel mm: (0.90...2.30)

5th speed 1/min: 1800 Charge press. hPa: 800

C15

mm: 4.90...5.70 mm: (4.60...6.00) Mech. shutoff: Mech. Abstellung: Supply-pump pressure characteristic: 1/min: 2250 1st speed Charge press. hPa: 800 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 1/min: 1000 1st speed Charge press. hPa: 800 Supply-pump pressure bar: 6.10...6.70 1/min: 1500 2nd speed Electr. shutoff: Charge press. hPa: 800 Supply-pump 1st speed 1/min: 400 bar: 7.10...7.70 Del. quantity cm3/: 0.00...3.00 pressure 1/min: 1800 3rd speed 1000s.: (0.00...3.00) Charge press. hPa: 800 Shutoff Supply-pump electromagnet volt: 12 bar: 7.70...8.30 pressure Idle delivery: Overlow quantity at overflow valve: 1st speed 1/min: 400 1st speed 1/min: 600 Del. quantity cm3/: 10.00...12.00 Charge press. hPa: 800 1000s.: (7.00...15.00) Overflow : 41.70 ... 83.40 Dispersion cm3/: 3.0quantity cm3/10s: (41.70...83.40) 1000s.: (3.0) 2nd speed 1/min: 500 Del. quantity cm3/: 2.00...8.00 1000s.: (1.50...8.50) 2nd speed 1/min: 2250 Charge press. hPa: 800 : 55.60...139.00 Overflow cm3/10s: (55.60...139.00) quantity Automatic starting fuel delivery: Delivery-quant. and breakaway char.: 2nd speed 1/min: 500 1nd speed 1/min: 600 Del. quantity cm3/: 10.00...30.00 Charge-air pressure-setting 1000s.: (10.00...30.00) point hPa: 300

Del. quantity cm3/: 35.50...36.50

1000s.: (32.50...39.50)

3rd speed 1/min: 2600 4th speed 1/min: 100 Del. quantity cm3/: 62.00...98.00 1000s.: (62.00...98.00) Charge press. hPa: 800 pel. quantity cm3/: 0.50...6.50 Shutoff electromagnet: 1000s.: (0.00...7.00) 1/min: 2500 5th speed Cut-in Charge press. hPa: 800 min voltage : 10.0 Del. quantity cm3/: 24.00...26.00 Rated voltage : 12.0 1000s.: (21.00...29.00) 1/min: 2250 9th speed Mounting and assembly dimensions: Charge press. hPa: 800 Del. quantity cm3/: 64.50...68.50 Designation 1000s.: (63.50...69.50) mm: 3.2...3.4 Κ 1/min: 1500 12th speed KF mm: K-OT Charge press. hPa: 800 MS mm: 0.6...1.0 Del. quyntity cm3/: 61.00...62.00 mm: 37.2...39.2 Ya 1000s.: (58.50...64.50) mm: 54,0...66.0 Yb 18th speed 1/min: 600 Del. quantity cm3/: 15.00...16.00 1000S.: (12.50...18.50) Remarks: 1/min: 600 20th speed Charge press. hPa: 800 Overflow restriction 0.55 mm - Part No. Del. quantity cm3/: 52.00...58.00 ..303 1000s.: -

TD travel

* Correction at adjusting nut (46)

Pushing electromagnet.

Note inst. in remarks column

Test scheet : PER Edition : 12.06.92 : 11.11.78 replaces Calibrating oil : ISO-4113

: VE4/11F1500R275 Injection pump Type number : 0 460 414 046

Customer Part-No. :

Customer-specific information Customer : PERKINS

: 500 SERIES FLT BS Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil •c return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening |

bar: 130.00...133.00 Pressure

Test inj. tubing : meternah

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Start of delivery

Prestroke mm: 0.5

(from BDC): +-0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1100 Speed

Setting value mm: 2.50...2.90

AFB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1100 Speed

Setting value bar: 4.90...5.50

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Full-load del. with change press.:

1/min: 1200 Speed

Del. quantity cm3/

1000s.: 46.00...47.00

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.5

1000s.: (3.5)

Low-idle speed regulation

Speed 1/min: 300

Del. quantity cm3/

1000s.: 10.00...14.00

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.0 1000s.: (3.0)

Full-load speed regulation

1/min: 1550 Speed

Del. quantity cm3/

1000s.: 27.00...37.00

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 70.00...100.00

1000s.: 70.00 mind

KSB/AFB

Valve Volt: 12

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1350

TD travel	mm:	3.604.40	+	KSB/AFB	
	mm:	(3.304.70)	+	valve Volt:	12
KSB/AFB	11-14-	40	+	Shutoff	40
valve Shutoff	Volt:	12	†	electromagnet Volt:	12 41.7083.40
electromagne	t Volt:	12	Ī	Overflow : quantity cm3/10s:	41.7003.40 (A1.70 83.A0)
3rd speed	1/min:	1100	I	2nd speed 1/min:	
TD travel		2.502.90	+	KSB/AFB	. , , , , ,
	mm:	(2.003.40)	+	valve Volt:	12
KSB/AFB	Volt:	10	†	Shutoff	40
valve Shutofi	volt:	12	İ	<pre>electromagnet Volt: Overflow :</pre>	55.60139.00
electromagnet	t Volt:	12	I	quantity cm3/10s:	
4th speed	1/min:	700	+	q_a, , , , , , , , , , , , , , , , , , ,	
TD travel		0.100.90	+	Delivery-quant. and	breakaway char .:
Ven /Arn	mm:	(-0.201.20)	+		
KSB/AFB valve	Volt:	12	1	2nd speed 1/min:	1470
Shutoff	voct.	12	I	KSB/AFB	1030
electromagne	t Volt:	12	+	valve Volt:	12
5th speed	1/min:	1500	+	Shutoff	
TD travel		3.704.50	+	electromagnet Volt:	12
KSB/AFB	mm:	(3.404.80)	†	Del. quantity cm3/:	(0.003.00)
valve	Volt:	12	I	3rd speed 1/min:	
Shutoff	1011.	· •	Ţ	KSB/AFB	1510
electromagne	t Volt:	12	+	valve Volt:	12
8th: speed			+	Shutoff	
TD travel		1.502.90	†	electromagnet Volt:	12
Shutoff	am:	(1.003.40)	İ	Del. quantity cm3/:	(6.0026.00)
electromagne	t Volt:	12	I	5th speed 1/min:	
-			+	KSB/AFB	
Supply-pump p	pressure	e characteristic:	+	valve Volt:	12
1st speed	1/min:	700	†	Shutoff electromagnet Volt:	12
Supply-pump	17 1011111.	700	I	Del. quantity cm3/:	27.0037.00
pressure	bar:	3.504.10	+	1000s.:	(26.0038.00)
KSB/AFB			+	9th speed 1/min:	1450
valve	Volt:	12	+	KSB/AFB	40
Shutoff electromagner	t Valte	12	İ	valve Volt: Shutoff	12
	1/min:		I	electromagnet Volt:	12
Supply-pump			+	Del. quantity cm3/:	
pressure	bar:	4.905.50	+	1000s.:	(43.5049.50)
KSB/AFB	Val.	12	+	12th speed 1/min:	1200
valve Shutoff	Volt:	12	İ	KSB/AFB valve Volt:	12
electromagne	t Volt:	12	Ţ	Shutoff	16
3rd speed	1/min:		+	electromagnet Volt:	12
Supply-pump		((0 7 00	+	Del. quyntity cm3/:	
pressure KSB/AFB	bar:	6.407.00	†		(44.0049.00)
valve	Volt:	12	Ī	15th speed 1/min: KSB/AFB	600
Shutoff	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1 50	1	valve Volt:	12
electromagne	t Volt:	12	+	Shutoff	
0 1	. •	£1	+	electromagnet Volt:	
Overtow quant	tity at	overflow valve:	†	Del. quantity cm3/:	29.5032.50
1st speed	1/min:	600	I	1000S.: 20th speed 1/min:	
+p		- -	1	and the second control of	

KSB/AFB Del. quantity cm3/: 19.00...35.00 valve Volt: 12 1000s.: (19.00...35.00) Shutoff electromagnet Volt: 12 1/min: 100 4th speed Del. quantity cm3/: 20.00...23.00 KSB/AFB 1000s.: (18.50...24.50) **Volt: 12** valve Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00...100.00 1000S.: (70.00...100.00) Mech. shutoff: Electr. shutoff: 1/min: 300 1st speed Shutoff electromagnet: Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Cut-in KSB/AFB min voltage : 10.0 Volt: 12 valve : 12.0 Rated voltage Idle delivery: Mounting and assembly dimensions: 1/min: 300 1st speed Designation KSB/AFB mm: -KF valve Volt: 12 mm: K-OT Shutoff mm: 0.9..1.15 MS electromagnet Volt: 12 Del. quantity cm3/: 10.00...14.00 SVS max. mm: 3.1 XK mm: 17.0...19.0 1000s.: (8.00...16.00) cm3/: 3.0 XL mm: 11.9...15.3 Dispersion mm: 37.0...39.0 Ya 1000s.: (3.0) mm: 58.7...69.5 1/min: 430 2nd speed KSB/AFB Remarks: valve Volt: 12 Overflow restriction 0.55 mm - Part No. ..303 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 3rd speed 1/min: 350 KSB/AFB Volt: 12 valve Shutoff electromagnet Volt: 12 Del. quantity cm3/: 3.00...9.00 1000s.: (1.50...10.50) Automatic starting fuel delivery: 1st speed 1/min: 300 KSB/AFB valve Volt: 12 Timing valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 29.00...45.00 1000s.: (29.00...45.00) 1/min: 400 2nd speed KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12

Note inst. in remarks column

Test scheet : IHC

Edition : 09.06.92 replaces : 12.12.86 Calibrating oil : ISO-4113

Injection pump : VE4/11F1090R176-1 Type number : 0 460 414 050

Customer—specific information Customer : IHC—CASE

Engine : 0239-E333, V833

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp. °C

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.35

Calibrating nozzle holder

assembly : 1 688 901 020

Opening |

Pressure bar: 172...175

Perforated-plate

diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.2

(from BDC): +0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 800

Setting value mm: 4.80...5.20

Supply-pump pressure

Speed 1/min: 800

Setting value bar: 5.10...5.70

Full-load del. with charge press.:

Speed 1/min: 800

Del. quantity cm3/

1000s.: 81.50...82.50

Dispersion cm3/: 3.5 1000s.: (4.0)

Low-idle speed regulation

Speed 1/min: 350

Del. quantity cm3/

1000s.: 21.50...25.50

Del. quantity cm3/: 3.5

1000s.: (4.0)

Full-load speed regulation

Speed 1/min: 1200

Del. quantity cm3/

1000s.: 12.00...18.00

Start:

Speed 1/min: 100 Del. quantity cm3/: - mind 1000S.: 100

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 400

TD travel mm: 1.70...2.50 mm: (1.40...2.80)

2nd speed 1/min: 800

TD travel mm: 4.80...5.20

mm: (4.30...5.70)

3rd speed 1/min: 1050

TD travel mm: 5.40...6.20

mm: (5.10...6.50)

Supply-pump pressure characteristic:

1st speed 1/min: 400

Supply-pump

pressure bar: 3.50...4.10

2nd speed 1/min: 800

Supply-pump

pressure bar: 5.10...5.70

3rd speed 1/min: 1050

Supply-pump

pressure bar: 6.00...6.60

Overlow quantity at overflow valve:

1st speed 1/min: 500

C21

Overflow : 55.50...139.00 cm3/10s: (40.50...153.00) quantity 2nd speed 1/min: 1090 : 55.50...139.00 Overflow cm3/10s: (40.50...153.00) quantity Delivery-quant. and breakaway char.: 2nd speed 1/min: 1270 Del. quantity cm3/: 0.00...2.00 1000S.: (0.00...2.00) 3rd speed 1/min: 1200 Del. quantity_cm3/: 12.00...18.00 1000s.: (10.50...19.50) 1/min: 1150 4th speed Del. quantity cm3/: 47.00...53.00 1000s.: (45.50...54.50) 1/min: 1050 5th speed Del. quantity cm3/: 78.50...81.50 1000s.: (77.40...82.60) 6th speed 1/min: 800 Del. quantity cm3/: 81.50...82.50 1000s.: (79.40...84.60) 7th speed 1/min: 650 Del. quantity cm3/: 75.00...79.00 1000s.: (73.60...80.40) 1/min: 500 8th speed Del. quantity cm3/: 65.50...69.50 1000s.: (64.10...70.90) Mech. shutoff: Mech. Abstellung: 1st speed 1/min: 1090 Del. quantity cm3/: -1600s.: -Idle delivery: 1st speed 1/min: 350 Del. quantity cm3/: 21.50...25.50 1000s.: (19.00...28.00) cm3/: 3.5 Dispersion 1000s.: 1/min: 400 2nd speed Del. quantity cm3/: 4.50...10.50 1000s.: (3.00...12.00) 1/min: 460 3rd speed Del. quantity cm3/: 0.00...2.00 1000s.: (0.00...2.00) Automatic starting fuel delivery: 1st speed 1/min: 220 Del. quantity cm3/: 100.00... 1000s.: -

1/min: 340

Del. quantity cm3/: ...70.00 1000s.: -4th speed 1/min: 100 Del. quantity cm3/: 100.00... 1000s.: -Mounting and assembly dimensions: Designation mm: -K۲ mn: 5.1...5.4 MS mm: 1.0..1.25 SVS max. mm: 3.2 mm: 37.2...39.2 Ya Yb mm: 46.8...56.8 Remarks:

2nd speed

Note inst. in remarks column

Test scheet : PER : 15.06.92 Edition : 21.07.88 replaces Calibrating oil : ISO-4113

Injection pump : VE4/11F2000R290 Type number : 0 460 414 053

Customer Part-No. :

Customer-specific information Custoner : PEPKINS

Engine : Prima 4000NA MARINE

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil •c return temp.

with thermometer: 40...48 : 42...50 Electronically

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening

bar: 130.00...133.00 Pressure

Test inj. tubing : motornah

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Start of delivery

Indicator setting

Piston stroke mm: 1.37 Outlet : A

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1800 Speed

mm: 3.20...3.60 Setting value

AFB/AFB

valve Volt: 12 Supply-pump pressure

Speed 1/min: 1800

Setting value bar: 6.20...6.80

KSB/AFB

valve Volt: 12

Full-load del. with charge press.:

1/min: 500

Del. quantity cm3/

1000s.: 17.50...18.50

KSB/AFB

valve Volt: 12 cm3/: 4.0 Dispersion

1000S .: (4.0)

Low-idle speed regulation

1/min: 400 Speed

Del. quantity cm3/

1000s.: 8.00...10.00

KSB/AFB

valve Volt: 12 Del. quantity cm3/: 3.0

1000s.: (3.0)

full-load speed regulation

1/min: 2150 Speed

Del. quantity cm3/

1000s.: 23.50...25.50

KSB/AFB

Volt: 12 valve

Start:

1/min: 100 Speed

Del. quantity cm3/: 55.00...85.00 mind 1000s.: 55.00

KSB/AFB

Valve Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000

TD travel mm: 3.70...4.50 mm: (3.40...4.80)

KSB/AFB

Volt: 12 valve 1/min: 1800 3rd speed

TD travel mm: 3.20...3.60

mm: (2.70...4.10)

KSB/AFB

valve Volt: 12 1/min: 1500 4th speed

TD travel mm: 1.60...2.40 1/min: 500 12th speed mm: (1.30...2.70) KSB/AFB KSB/AFB valve Volt: 12 Del. quyntity cm3/: 17.50...18.50 valve Volt: 12 1/min: 1200 8th speed 1**000s.:** (13.00...23.00) TD travel mm: 2.10...4.10 mm: (1.90...4.30) Mech. shutoff: 1/min: 500 mm: 2.30...2.50 mm: (1.60...3.20) 9th speed Mech. Abstelluna: TD travel Supply-pump pressure characteristic: 1**000s.:** (0.00...3.00) KSB/AFB 1/min: 2000 1st speed Volt: 12 valve Supply-pump bar: 6.80...7,40 pressure Electr. shutoff: KSB/AFB **Volt: 12** valve 1/min: 400 1st speed 1/min: 1800 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 2nd speed Supply-pump bar: 6.20...6.80 pressure Shutoff KSB/AFB electromagnet volt: 12 Volt: 12 1/min: 1000 valve KSB/AFB 4th speed Volt: 12 valve Supply-pump bar: 4.30...4.90 pressure Idle delivery: KSB/AFB 1st speed valve Volt: 12 1/min: 400 KSB/AFB Overlow quantity at overflow valve: valve Volt: 12 Del. quantity cm3/: 8.00...10.00 1000s.: (5.00...13.00) cm3/: 3.0 1/min: 500 1st speed KSB/AFB Dispersion 1000s.: (3.0) valve Volt: 12 : 41.70...83.40 Overflow 1/min: 500 4th speed cm3/10s: (41.70...83.40) quantity KSB/AFB 1/min: 2000 -2nd speed Volt: 12 valve KSB/AFB Del. quantity cm3/: 1.00...7.00 Volt: 12 valve 1000s.: -: 55.60...139.00 Overflow cm3/10s: (55.60...139.00) Automatic starting fuel delivery: quantity Delivery quant. and breakaway char.: 1/min: 450 2nd speed KSB/AFB 1/min: 2200 3rd speed valve Volt: 12 KSB/AFB Del. quantity cm3/: 20.00...40.00 Volt: 12 valve 1000s.: (20.00...40.00) Del. quantity cm3/: 0.00...15.00 1000s.: (0.00...15.00) 1/min: 2150 4th speed 1/min: 100 5th speed KSB/AFB KSB/AFB valve Volt: 12 Del. quantity cm3/: 55.00...85.00 valve Volt: 12 Del. quantity cm3/: 23.50...25.50 1000s.: (55.00...85.00) 1000s.: (20.50...28.50) 1/min: 2000 9th speed Shutoff electromagnet: KSB/AFB Volt: 12 Cut-in Del. quantity cm3/: 60.00...65.00 min voltage : 10.0 1000s.: (59.00...66.00) : 12.0 Rated voltage

Mounting and assembly dimensions:

Designation

MS mm: 3.2...3.4
MS mm: 5.0...5.4
MS svS max. mm: 5.7
Ya mm: 37.0...39.0
Yb mm: 66.8...68.2

Remarks:

: Overflow restriction 0.55 mm - Part No. ..303

Note inst. in remarks column

Test scheet

: 04.06.92 Edition

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/11F1200R277-2

Type number : 0 460 414 077

Customer Part-No. :

Customer-specific information

Customer

: CASE

Engine

: D 268/985

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil

return temp.

with thermometer : 40.00...48.00 : 42.00...50.00 Electronically

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 020 assembly

Opening

bar: 172.00...175.00 Pressure

Perforated-plate

diameter men: 0.6

Test ini. tubing : 1 680 750 017

Outside diameter : 6.00

x Wall thickness : 2.00

x Length

mm: 840

Injection-pump setting values

Test specifications in parentheses

Timing device travel

1/min: 700 Speed

Setting value mm: 4.50...4.90

Supply-pump pressure

1/min: 700 Speed

Setting value bar: 3.40...4.00

Full-load del. w/out charge press.:

Speed 1/min: 700

Del. quantity cm3/

1000s.: 92.00...93.00

Dispersion cm3/: 3.5

1000s.: (4.0)

Low-idle speed regulation

1/min: 375 Speed

Del. quantity cm3/

1000s.: 16.50...20.50

Del. quantity cm3/: 3.0

1000s.: (3.5)

Full-load speed regulation

1/min: 1260 Speed

Del. quantity cm3/

1000s.: 71.00...77.00

Start:

Speed 1/min: 100 Del. quantity cm3/: 95.00...145.00

mind 1000s.: 95.00

Inspection pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1150 2nd speed

mm: 7.20...8.00 TD travel

mm: (6.90...8.30)

3rd speed 1/min: 700

mm: 4.50...4.90 TD travel

nation (4.00...5.40)

1/min: 500 4th speed

TD travel mm: 2.60...3.40

mm: (2.30...3.70)

Supply-pump pressure characteristic:

1st speed 1/min: 500

Supply-pump

bar: 2.70...3.30 1/min: 700 pressure

2nd speed

Supply-pump

bar: 3.40...4.00 pressure

1/min: 1150 3rd speed

Supply-pump

bar: 5.00...5.60 pressure

Overlow quantity at overflow valve:

1/min: 500 1st speed

: 41.70...83.40 Overflow |

cm3/10s: (26.70...98.40) quantity

1/min: 1150 2nd speed : 55.60...139.00 Overflow cm3/10s: (40.60...153.00) quantity Delivery-quant. and breakaway char .: 3rd speed 1/min: 1400 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 5th speed 1/min: 1260 Del. quantity cm3/: 71.00...77.00 1000s.: (69.50...78.50) 8th speed 1/min: 1290 Del. quantity cm3/: 10.00...60.00 1000s.: (10.00...60.00) 1/min: 1150 9th speed Del. quantity cm3/: 94.00...97.00 1000s.: (92.50...98.50) 1/min: 700 12th speed Del. auyntity cm3/: 92.00...93.00 1000s.: (90.00...95.00) 1/min: 1340 17th speed Del. quantity cm3/: 0.00...10.00 1000H.: (0.00...10.00) 1/min: 500 20th speed Del. quantity cm3/: 89.50...93.50 1000s.: (88.00...95.00) Mech. shutoff: Mech. Abstellung: 1st speed 1/min: 1150 Del. quantity cm3/: 0.00...3.00 1000s.: (0,00...3.00) Idle delivery. 1/min: 375 1st speed Del. quantity cm3/: 16.50...20.50 1000s.: (14.00...23.00) cm3/: 3.0 Dispersion 1000S.: (3.5) 1/min: 450 2nd speed Del. quantity cm3/: 0.00...4.00 1000s.: (0.00...4.00) Automatic starting fuel delivery: 1/min: 350 1st speed Del. quantity cm3/: 110.00...130.00 1000s.: (110.00...130.00) 2nd speed 1/min: 450 Del. quantity cm3/: 90.00...110.00 1000s.: (90.00...110.00) 4th speed 1/min: 100 Del. quantity cm3/: 95.00...145.00

1000s.: (95.00...145.00)

Mounting and assembly dimensions:

Designation

K mm: 3.2...3.4 KF mm: 5.3...5.7 MS mm: 0.9...1.1

Remarks:

:

Note inst. in remarks column

Test scheet : CAS

Edition : 05.06.92

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/11F1200R277-3

Type number : 0 460 414 084

Customer Part-No. :

Customer-specific information

Customer : CASE

Engine : DT 268/985 NAO

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil •0 return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 020 assembly

Opening

Pressure bar: 172.00...175.00

Perforated-plate

diameter men: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00

x Length mm: 840

Injection pump setting values

Test specifications in parentheses

Timing device travel

1/min: 700 Speed

Setting value mm: 4.50...4.90

Supply-pump pressure

1/min: 700 Speed

Setting value bar: 3.40...4.00

Full-load del. w/out charge press.:

1/min: 700 Speed

Del. quantity cm3/ 1000s.: 109.50...110.50 cm3/: 3.5

Dispersion

1000s.: (4.0)

Low-idle speed regulation

Speed 1/min: 375

Del. quantity cm3/

1000s.: 16.50...20.50

Del. quantity cm3/: 3.0

1000s.: (3.5)

Full-load speed regulation

Speed 1/min: 1260

Del. quantity cm3/

1000s.: 71.00...77.00

Start:

Speed 1/min: 100

Del. quantity cm3/: 95.00...145.00 mind 1000s.: 95.00

Inspection pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1150

TD travel mm: 7.20...8.00

mm: (6.90...8.30)

1/min: 700 3rd speed

mm: 4.50...4.90 TD travel

rgn: (4.00...5.40)

4th speed 1/min: 500

TD travel mm: 2.60...3.40

mm: (2.30...3.70)

Supply-pump pressure characteristic:

1st speed 1/min: 500

Supply-pump

bar: 2.70...3.30 1/min: 700 pressure

2nd speed

Supply-pump

pressure bar: 3.40...4.00

3rd speed 1/min: 1150

Supply-pump

bar: 4.90...5.50 pressure

Overlow quantity at overflow valve:

1st speed 1/min: 500

: 41.70...83.40 Overflow quantity cm3/10s: (26.70...98.40)

1/min: 1150 2nd speed Overflow : 55.60...139.00 Mounting and assembly dimensions: quantity cm3/10s: (40.60...153.00) Designation Delivery-quant. and breakaway char.: mm: 3.2...3.4 mm: 5.3...5.7 KF MS mm: 0.9...1.1 2nd speed 1/min: 1400 SVS max. mm: 1.2 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Remarks: 1/min: 1340 3rd speed : Del. quantity cm3/: 0.00...10.00 1000s.: (0.00...10.00) 1/min: 1290 4th speed Del. quantity cm3/: 10.00...60.00 1000S.: (10.00...60.00) 5th speed 1/min: 1260 Del. quantity cm3/: 71.00...77.00 1000s.: (69.50...78.50) 1/min: 1150 9th speed Del. quantity cm3/: 103.50...106.50 1000s.: (102.00...108.00) 1/min: 700 12th speed Del. quyntity cm3/: 109.50...110.50 1000s.: (107.50...112.50) 20th speed 1/min: 500 Del. quantity cm3/: 101.00...105.00 1000s.: (99.50...106.50) Mech. shutoff: Mech. Abstellung: 1st speed 1/min: 1150 Del. quantity cm3/: 0.00...3.90 1000s.: (0.00...3.00) Idle delivery. 1st speed 1/min: 375 Del. quantity cm3/: 16.50...20.50 1000s.: (14.00...23.00) cm3/: 3.0 Dispersion 1000s.: (3.5) 2nd speed 1/min: 450 Del. quantity cm3/: 0.00...4.00 1000s.: (0.00...4.00) Automatic starting fuel delivery: 1st speed 1/min: 350 Del. quantity cm3/: 110.00...130.00 1000s.: (110.00...130.00) 1/min: 450 2nd speed Del. quantity cm3/: 90.00...110.00 1000s.: (90.00...110.00) 4th speed 1/min: 100 Del. quantity cm3/: 95.00...145.00 1000s.: (95.00...145.00)

Note inst. in remarks column

Test scheet : VMA Edition : 09.06.92 replaces : 03.12.86 Calibrating oil : ISO-4113

Injection pump : VE5/11F1900L179 Type number : 0 460 415 007

Customer Part-No. :

Customer-specific information : VM MOTORI Customer

: HR 592 HTJ/9 2.991L Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 000

Opening

Pressure bar: 147.00...150.00

Perforated-place

diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.2

(from BDC): $\leftarrow 0.02(0.04)$

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1500 Charge press. hPa: 1000

Setting value mm: 4.90...5.30

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500 Charge press hPa: 1000

Setting value bar: 4.70...5.30

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1500 Speed Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 66.50...67.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.5 1000s.: (3.5)

Full-load del. w/out charge press.:

Speed 1/min: 600

Del. quantity cm3/

1000s.: 41.50...42.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 420 Speed

Del. quantity cm3/

1000s.: 20.50...24.50

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.5 1000S.: (3.5)

Full-load speed regulation

Speed 1/min: 2060 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 36.00...42.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity_cm3/: 50.00...76.00

1000s.: 50.00 mind

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1			4.5
Charge press hPa: 1		Shutoff	
	7.107.90	electromagnet Volt:	
	(6.808.20)	Del. quantity cm3/:	51.0052.00
Shutoff	Ļ	10C0s.:	(48.1054.90)
electromagnet Volt: 1	12 +	3rd speed 1/min:	2200
3rd speed 1/min: 1	1500 +	Charge press. hPa:	
Charge press hPa: 1	1000 4	Shutoff	
TD travel mm: 4	4.905.30	electromagnet Volt:	12
mm: ((4.405.80)	Del. quantity cm3/:	0.00. 3.00
Shutoff	1		(0.003.00)
electromagnet Volt: 1	12 🕹	5th speed 1/min:	
4th speed 1/min: 1		Charge press. hPa:	
Charge press hPa: 1		Shutoff	1000
	1.502.30	electromagnet Volt:	12
	(1.202.60)	Del. quantity cm3/:	36 00 42 00
Shutoff	1	1000e ·	(34.5043.50)
electromagnet Volt: 1	12	8th speed 1/min:	
etectionagnet vott.	' ² T		
Simple and an income	shanastanistis. T	Charge press. hPa:	1000
Supply-pump pressure	characteristic:	Shutoff	40
1 mt mand 1/mins 1	1000	electromagnet Volt:	
1st speed 1/min: 1		Del. quantity cm3/:	2.008.00
Charge press. hPa: 1	†	10005.:	(0.5009.5)
Supply-pump	, aa	9th speed 1/min:	
	5.006.60	Charge press. hPa:	1000
Shutoff	+	Shutoff	
electromagnet Volt: 1	12+	electromagnet Volt:	12
2nd speed 1/min: 1		Del. quantity cm3/:	59.0062.00
Charge press. hPa: 1	1000 +		(57.8063.20)
Supply-pump	+	12th speed 1/min:	
	4.705.30 +	Charge press. hPa:	1000
Shutoff	÷	Shutoff	
electromagnet Volt: 1	12 🗼	electromagnet Volt:	12
3rd speed 1/min: 6	500 +	Del. quyntity cm3/:	
Charge press. hPa: 1	1000 🕹		(64.3069.70)
Supply-pump	+	18th speed 1/min:	
	1.702.30	Shutoff	
Shutoff	1	electromagnet Volt:	12
electromagnet Volt: 1	12	Del. quantity cm3/:	41 50 42 50
	1	10008	(38.6045.40)
Overlow quantity at o	overflow valve:	10000	(30.0073,70)
over com quarter cy are c	1	Mech. shutoff:	
1st speed 1/min: 6	sno 1	neem. Shatorr.	
Shutoff	1	Electr. shutoff:	
electromagnet Volt: 1	12	Lieuri. Silatori.	
	55.60139.00 I	1st speed 1/min:	1000
	(40.50153.00)	1st speed 1/min:	1700
2nd speed 1/min: 1		Talla ala la como co	
		Idle delivery:	
Charge press. hPa: 1	1000	4-2	/26
Shutoff	· · · · · · · · · · · · · · · · · · ·	1st speed 1/min:	420
electromagnet Volt: 1	16 470 00	Shutoff	46
	55.60139.00	electromagnet Volt:	72
quantity cm3/10s: ((40.00753.00)	Del. quantity cm3/:	20.5024.50
	<u> </u>		(18.0027.00)
Celivery-quant. and b	oreakaway char.: +	Dispersion cm3/:	
	+	10005.:	
	+	2nd speed 1/min:	500
1nd speed 1/min: 7		Shutoff	
Charge-air pressure-s		electromagnet Volt:	12
point hPa: 3		•	

Del. quantity cm3/: 14.00...20.00 1000s.: (12.50...21.50)

4th speed 1/min: 650

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 0.00...2.00

1000s.: (0.00...2.00)

Automatic starting fuel delivery:

1st speed 1/min: 280

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 50.00...76.00 1000s.: (50.00...76.00)

2nd speed 1/min: 380

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 29.00...55.00

1000s.: (29.00...55.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 50.00...76.00

1000s.: (50.00...76.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K

nm: -KF mm: 5.9...6.1 MS mm: 0.9...1.1

SVS max. mm: 3.2 LDA stroke mm: 4.5

Remarks:

Pushing electromagnet.

* Correction at adjusting nut (46)

Note inst. in remarks column

Test scheet : VMA Edition : 09.06.92 replaces : 03.08.88 Calibrating oil : ISO-4113

Injection pump : VE6/11F1900L178 Type number : 0 460 416 035

Customer Part-No. :

Customer-specific information

Customer

: HR692HTJ/9 Engine

KW: 132 Power

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 000

Openina .

bar: 147.00...150.00 Pressure

Perforated-plate

diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.2

(from BDC): +0.02(0.04)

Indicator setting Piston stroke mm: 1.0 Outlet

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1500 Speed Charge press. hPa: 750

Setting value mm: 4.70...5.10

Supply-pump pressure

Speed 1/min: 1500 Charge press hPa: 750 Setting value bar: 5.50...6.10

Full-load del. with charge press.:

1/min: 1500 Charge press. hPa: 750 Del. quantity cm3/

1000s.: 66.00...67.00 cm3/: 3.5

Dispersion 1000s.: (3.5)

Full-load del. w/out charge press.:

1/min: 600 Speed Del. quantity cm3/

1000s.: 47.50...48.50

Low-idle speed regulation

1/min: 400 Speed Del. quantity cm3/

1000s.: 18.00...22.00 Del. quantity cm3/: 3.5 1000s.: (3.5)

Full-load speed regulation

Speed 1/min: 2000 Charge press hPa: 750
Del. quantity cm3/
1000S.: 46.00...52.00

Start:

Speed 1/min: 100

Del. quantity cm3/: 40.00...80.00

1000s.: 40.00

Inspection-pump test specifications Test specifications in parentheses

Timing device characteristic:

1/min: 1850 2nd speed hPa: 750 Charge press

mm: 6.50...7.30 TD travel

mm: (6.20...7.60)

1/min: 1500 3rd speed Charge press hPa: 750

mm: 4.70...5.10 TD travel

mm: (4.20...5.60)

Mech. shutoff: Charge press hPa: 750 Mech. Abstellung: TD travel mm: 1.80...2.60 1st speed 1/min: 1850 Del. quantity cm3/: 0.00...3.00 mm: (1.50...2.90) Supply-pump pressure characteristic: 1000s.: (0.00...3.00) 1st speed 1/min: 1850 Electr. shutoff: Charge press. hPa: 750 Supply-pump 1st speed 1/min: 400 pressure bar: 6.70...7.30 Del. quantity cm3/: 0.00...3.00 2nd speed 1/min: 1500 1000s.: (0.00...3.00) Charge press. hPa: 750 Shutoff Supply-pump electromagnet volt: 12 bar: 5.50...6.10 pressure 3rd speed 1/min: 600 Idle delivery: Charge press. hPa: 750 Supply-pump 1st speed 1/min: 400 Del. quantity cm3/: 18.00...22.00 pressure bar: 2.40...3.00 1000s.: (16.00...24.00) cm3/: 3.5 Overlow quantity at overflow valve: Dispersion 1000s.: (3.5) 1st speed 1/min: 600 1/min: 500 2nd speed Charge press. hPa: 750 Del. quantity cm3/: 7.50...12.50 Overflow : 41.70...83.40 1000s.: (5.50...14.50) cm3/10s: (41.70...83.40) quantity 4th speed 1/min: 600 1/min: 1850 2nd speed Del. quantity cm3/: 0.00...4.00 Charge press. hPa: 750 7000s.: (0.00...4.00) Overflow : 55.60...139.00 cm3/10s: (55.60...139.00) quantity Automatic starting fuel delivery: Delivery-quant. and breakaway char.: 1st speed 1/min: 350 Del. quantity cm3/: 45.00...85.00 1000s.: (45.00...85.00) 1/min: 600 1nd speed Charge-air pressure-setting 2nd speed 1/min: 450 point t Pa: 300 Del. quantity cm3/: 28.00...48.00 LDA-stroke mm: 4.0 1000s.: (28.00...48.00) Del. quantity cm3/: 53.00...54.00 1000s.: (51.00...56.00) 1/min: 100 4th speed 3rd speed 1/min: 2130 Del. quantity cm3/: 40.00...80.00 Charge press. hPa: 750 1000s.: (40.00...80.00) Del. quantity cm3/: 2.50...10.50 1000s.: -Mounting and assembly dimensions: 1/min: 2000 5th speed Charge press. hPa: 750 Designation Del. quantity cm3/: 46.00...52.00 K mm: -1000s.: (45.00...53.00) mm: 6.2...6.6 KF 9th speed 1/min: 1850 MS mm: 0.8...1.2 Charge press. hPa: 750 SVS max. mm: 4.7 Del. quantity cm3/: 61.00...64.00 mm: 37.2...39.2 Ya 1000s.: (60.30...64.70) Yb mm: 50.5...58.5 12th speed 1/min: 1500 Charge press. hPa: 750 Remarks: Del. quyntity cm3/: 66.00...67.00 1000s.: (64.50...68.50) 1/min: 500 18th speed Del. quantity cm3/: 47.50...48.50 1000s.: (45.50...50.50)

4th speed

1/min: 1000

Note inst. in remarks column

Test scheet

: 09.06.92 Edition replaces : 16.12.86

Calibrating oil : ISO-4113

Injection pump : VE6/11F1250R181

Type number : 0 460 416 036

Customer Part-No. :

Customer-specific information

Customer : IVECO-FIAT

Engine : 8065.05.200

TEST BENCH REQUIREMENTS

Calibrating-oil

return temp.

with thermometer : 40...48 : 42...50 Electronically

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 020 assembly

Opening

Pressure bar: 172.00...175.00

Perforated-place

diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00

mm: 840 x Length

Injection pump setting values

Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000

Setting value mm: 4.90...5.30

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1000

Setting value bar: 5.20...5.80

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 800

Del. quantity cm3/

1000s.: 63.50...64.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.5

1000s.: (4.0)

Low-idle speed regulation

Speed 1/min: 325

Del. quantity cm3/

1000s.: 8.00...12.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.5

1000s.: (4.0)

Full-load speed regulation

1/min: 1350 Speed

Del. quantity cm3/

1000s.: 33.00...39.00

Start:

1/min: 100 Speed

Del. quantity cm3/: 95.00...145.00

1000s.: 95.00 mind

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing device characteristic:

3rd speed 1/min: 1000

mm: 4.90...5.30 TD travel

mm: (4.40...5.80)

Shutoff

electromagnet Volt: 12

4th speed 1/min: 600

TD travel mm: 0.70...1.50

mm: (0.40...1.80)

Shutoff

electromagnet Volt: 12
5th speed 1/min: 1250
TD travel mm: 5.40...6.20

mm: (5.10...6.50)

Shutoff

electromagnet Volt: 12

Supply-pump pressure characteristic:

D07

Del. quantity cm3/: 58.50...61.50 1000s.: (57.00...63.00) 1st speed 1/min: 500 Supply-pump bar: 3.10...3.70 pressure Shutoff Mech. shutoff: electromagnet Volt: 12 Mech. Abstellung: 1/min: 1000 3rd speed 1st speed 1/min: 1250 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Supply-pump bar: 5.20...5.80 pressure Shutoff electromagnet Volt: 12 4th speed 1/min: 1250 Shutoff electromagnet volt: 12 Supply-pump bar: 6.30...6.90 pressure Electr. shutoff: Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1000s.: (0.00...3.00) 1/min: 500 1st speed Idle delivery: Shutoff electromagnet Volt: 12 1/mir: 325 1st speed : 41.70...83.40 Shutoff Overflow cm3/10s: (41.70...83.40) quantity electromagnet Volt: 12 Del. quantity cm3/: 8.00...12.00 1000s.: (6.00...14.00) Dispersion cm3/: 3.5 2nd speed 1/min: 1250 Shutoff electromagnet Volt: 12 : 55.60...139.00 1000s.: (4.0) 1/min: 400 Overflow cm3/10s: (55.60...139.00) quantity 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Delivery quant. and breakaway char .: 2nd speed 1/min: 1450 3rd speed 1/min: 360 Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Del. quantity cm3/: 2.00...8.00 1000s.: (1.00...9.00) 1/min: 1400 3rd speed Shutoff Automatic starting fuel delivery: 1st speed 1/min: 150 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 95.00...145.00 1000S.: (95.00...145.00) Shutoff electromagnet Volt: 12 Del. quantity cm3/: 33.00...39.00 1000s.: (30.00...42.00) 2nd speed 1/min: 250 1/min: 1250 9th speed Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 40.00...60.00 1000s.: (40.00...60.00) electromagnet Volt: 12 Del. quantity cm3/: 53.00...56.00 1000s.: (51.50...57.50) 1/min: 800 12th speed 4th speed 1/min: 100 Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 95.00...145.00 1000S.: (95.00...145.00) electromagnet Volt: 12 Del. quyntity cm3/: 63.50...64.50 1000s.: (61 .00...67.00) 1/min: 500 20th speed Shutoff Shutoff electromagnet: electromagnet Volt: 12

Cut-in min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

mm: 3.2...3.4 mm: 5.2...5.4 mm: 1.5...1.7 mm: 4.3 mm: 25.0...27.0 mm: 13.4...16.8 mm: 34.9...36.9 mm: 45.8...51.1 K KF MS SVS max. XK XL Ya Yb

:

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS Note inst. in remarks column Test scheet : 09.06.92 Edition replaces : 09.85 Calibrating oil : ISO-4113 Injection pump : VE6/11F150CR196 Type number : 0 460 416 042 Customer Part-No. : Customer-specific information Customer : IVECO-FIAT : 8060.05.200 Engine TEST BENCH REQUIREMENTS Calibrating-oil return temp. with thermometer : 40...48 Electronically : 42...50 Inlet press., bar: 0.30...0.40 Calibrating nozzle-holder assembly : 1 688 901 020 Openina bar: 172.00...175.00 Pressure Perforated place diameter mm: 0.6 Test inj. tubing : 1 680 750 017 Outside diameter : 6.00 × Wall thickness : 2.00 mm: 840 x Length Injection-pump setting values Test specifications in parentheses Timing-device travel Speed 1/min: 1000 Setting value mm: 3.20...3.60 Shutoff

electromagnet Volt: 24

Shutoff electromagnet Volt: 24 Full-load del. with charge press.: Speed 1/min: 1300 Del. quantity cm3/ 1000s.: 70.50...71.50 Shutoff electromagnet Volt: 24 Dispersion cm3/: 3.5 1000S.: (4.0) Low-idle speed regulation 1/min: 325 Del. quantity cm3/ 1000s.: 8.00...12.00 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 3.0 1000s.: (4.0) Full-load speed regulation Speed 1/min: 1650 Del. quantity cm3/ 1000s.: 37.00...43.00 Shutoff electromagnet Volt: 24 Start: 1/min: 100 Speed Del. quantity cm3/: 76.00...126.00 mind 1000s.: 76.00 mind Shutoff electromagnet Volt: 24 Inspection-pump test specifications Test specifications in parentheses Timing-device characteristic: 2nd speed 1/min: 1400 mm: 6.20...7.00 TD travel mm: (5.90...7.30) Shutoff electromagnet Volt: 24 3rd speed 1/min: 1000 mm: 3.20...3.60 TD travel mm: (2.70...4.10) Shutoff electromagnet Volt: 24 1/min: 700 4th speed TD travel mm: 9.50...1.30 mm: (0.20...1.60) Shutoff

electromagnet Volt: 24

1/min: 1000

Setting value bar: 5.40...6.00

Supply-pump pressure

Supply-pump pressure characteristic	
1st speed 1/min: 700	1000S.: (68.0074.00)
	15th speed 1/min: 800
Supply-pump pressure bar: 4.204.80	Shutoff
• • • • • • • • • • • • • • • • • • • •	electromagnet Volt: 24
Shutoff	+ Del. quantity cm3/: 66.5069.50
electromagnet Volt: 24	† 1000s.: (65.0071.00)
2nd speed 1/min: 1000	† 20th speed 1/min: 600
Supply-pump	+ Shutoff
pressure bar: 5.406.00	+ electromagnet Volt: 24
Shutoff	+ Del. quantity cm3/: 57.0061.00
electromagnet Volt: 24	+ 1000s.: (55.5062.50)
3rd speed 1/min: 1500	+
Supply-pump	→ Mech. shutoff:
pressure bar: 7.207.80	🕂 Mech. Abstellung:
Shutoff	+
electromagnet Volt: 24	+ 1st speed 1/min: 1500
•	+ Del. quantity cm3/: 0.003.00
Overlow quantity at overflow valve:	10008.: (0.003.00)
	Shutoff
1st speed 1/min: 600	electromagnet volt: 24
Shutoff	T ececti diagnet voct. 24
electromagnet Volt: 24	I Electr. shutoff:
Overflow : 41.7083.40	T Electr. Shatorr.
quantity cm3/10s: (41.7083.40)	T 1-4 1/min. 705
	1 1st speed 1/min: 325
2nd speed 1/min: 1560	to Del. quantity cm3/: 0.003.00
Shutoff	10008.: (0.003.00)
electromagnet Volt: 24	†
Overflow : 55.60139.00	† Idle delivery:
quantity cm3/10s: (55.60139.00)	
	- 1st speed 1/min: 325
Delivery-quant. and breakaway char.:	
	+ electromagnet Volt: 24
	+ Del. quantity cm3/: 8.0012.00
2nd speed 1/min: 1750	+ 1000s.: (6.0014.00)
Shutoff	+ Dispersion cm3/: 3.0
electromagnet Volt: 24	+ 1000s.: (4.0)
Del. quantity cm3/: 0.003.00	2nd speed 1/min: 450
1000\$.: (0.003.00)	+ Shutoff
5th speed 1/min: 1650	+ electromagnet Volt: 24
Shutoff	Del. quantity cm3/: 0.003.00
electromagnet Volt: 24	+ 1000s.: (0.003.00)
Del. quantity cm3/: 37.0043.00	10000
10005:: (34.0046.00)	Automatic starting fuel delivery:
8th speed 1/min: 1600	T Automatic stateling fuel delivery.
Shutoff	T 1nt amond 1/min. 200
	+ 1st speed 1/min: 200
electromagnet Volt: 24	+ Shutoff
Del. quantity cm3/: 46.0054.00	+ electromagnet Volt: 24
1000\$.: (45.0055.00)	+ Del. quantity cm3/: 80.00130.00
9th speed 1/min: 1500	10008:: (80.00130.00)
Shutoff	+
electromagnet Volt: 24	+ 2nd speed 1/min: 320
Del. quantity cm3/: 66.0069.00	+ Shutoff
1000s.: (64.5070.50)	+ electromagnet Volt: 24
Shutoff	<pre></pre>
electromagnet Volt: 24	+ 1000s.: (24.0044.00)
12th speed 1/min: 1300	+
Shutoff	+ 4th speed 1/min: 100
electromagnet Volt: 24	+ Shutoff
	+ electromagnet Volt: 24
	1 - Frank Annagries as as a second

Del. quantity cm3/: 76.00...126.00 1000s.: (76.00...126.00)

Mounting and assembly dimensions:

Designation

mm: 3.2...3.4 mm: 5.7...5.9 mm: 1.9...2.1 mm: 17.0...19.0 mm: 10.6...14.0 mm: 37.9...39.9 mm: 41.9...47.3 KF MS XK XL Ya Yb

:

Remarks:

D12

Note inst. in remarks column

Test scheet : FIA : 09.06.92 Edition : 23.08.89 replaces : ISO-4113 Calibrating oil

: VE6/11F1250R181-1 Injection pump Type number : 0 460 416 046

Customer Part-No. :

Customer-specific information Customer : IVECO-FIAT

: 8065.05.290 Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil °C return temp.

with thermometer: 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 020 assembly

Opening |

bar: 172.00...175.00 Pressure

Perforated-plate

diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Lenath

Injection-pump setting values Test specifications in parentheses

Timing device travel

Speed 1/min: 1000

Setting value mm: 4.70...5.10

Shutoff

electromagnet Volt: 24

Supply-pump pressure

1/min: 1000 Speed

Setting value bar: 6.20...6.80

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 800

Del. quantity cm3/ 1000s.: 71.00...72.00

Shutoff

electromagnet Volt: 24 cm3/: 3.5 Dispersion 1000s.: (4.0)

Low-idle speed regulation

1/min: 400 Speed

Del. quantity cm3/

1000s.: 20.00...24.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 3.5 1000s.: (4.0)

Full-load speed regulation

Speed 1/min: 1380

Del. quantity cm3/ 1000s.: 21.00...27.00

Shutoff

electromagnet Volt: 24

Start:

1/min: 100 Speed

Del. quantity cm3/: 100.00...150.00

mind 1000s.: 100.0

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

3rd speed 1/min: 1000

TD travel mm: 4.70...5.10 mm: (4.20...5.60)

Shutoff

electromagnet Volt: 24 4th speed 1/min: 600

TD travel mm: 0.90...1.70 mm: (0.60...2.00)

Shutoff

electromagnet Volt: 24 1/min: 1250 5th speed

mm: 5.30...6.10 TD travel

mm: (5.00...6.40)

Shutoff

electromagnet Volt: 24

D13

	+	20th speed 1/min:	600
Supply-pump pressure	e characteristic:	Shutoff	
2nd speed 1/min: Supply-pump	600	electromagnet Volt: Del. quantity cm3/:	
pressure bar: Shutoff	4.605.20	Mech. shutoff:	(00.50/5.50)
electromagnet Volt: 3rd speed 1/min:	24 1000	Mech. Abstellung:	
Supply-pump	t	1st speed 1/min:	
Shutoff	6.206.80		0.003.00 (0.003.00)
electromagnet Volt: 4th speed 1/min:		Shutoff electromagnet volt:	24
Supply-pump pressure bar:	7.207.30	Electr. shutoff:	
Shutoff	+		/00
electromagnet Volt:	+	1st speed 1/min: Del. quantity cm3/:	0.003.00
Overlow quantity at	+	1000S.:	(0.003.00)
1st speed 1/min: Shutoff	+	Idle delivery:	
electromagnet Volt: Overflow :	24 + 41.7083.40 +	1st speed 1/min: Shutoff	400
quantity cm3/10s:		electromagnet Volt:	24
2nd speed 1/min:	1250 +	Del. quantity cm3/:	20.0024.00
Shutoff	<u></u>	1000s.:	(18.0026.00)
electromagnet Volt:		Dispersion cm3/:	
Overflow : quantity cm3/10s:	55.60139.00	1000s.: 2nd speed 1/min:	(4.U) 520
qualitity clib/105.	[]	Shutoff	520
Delivery-quant. and	breakaway char.:	electromagnet Volt:	24
•	†	Del. quantity cm3/:	
2nd speed 1/min: Shutoff	1450	3rd speed 1/min: Shutoff	450
electromagnet Volt:	24	electromagnet Volt:	24
Del. quantity cm3/: 1000s.:	0.003.00	Del. quantity cm3/: 1000s.:	7.0013.00 (6.0014.00)
5th speed 1/min:			
Shutoff electromagnet Volt:	24	Automatic starting 1	ruet delivery:
Del. quantity cm3/:		1st speed 1/min: Shutoff	150
8th speed 1/min:		electromagnet Volt:	24
Shutoff	+	Del. quantity cm3/:	
electromagnet Volt:		1000s.:	(100.00150.00)
Del. quantity cm3/: 1000s.:	48.5055.50	2nd speed 1/min:	250
9th speed 1/min: Shutoff	1250	Shutoff	
electromagnet Volt:	24 I	<pre>electromagnet Volt: Del. quantity cm3/:</pre>	57.50 77.50
Del. quantity cm3/:			(57.5077.50)
12th speed 1/min:		4th speed 1/min:	100
Shutoff	1	Shutoff	100
electromagnet Volt:		electromagnet Volt:	24
Del. quyntity cm3/:		Del. quantity cm3/:	
10005.:	(68.5074.50)	1000S.:	(100.00150.00)

Shutoff electromagnet:

Cut-in

min voltage : 22.0 Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

KF mm: 3.2...3.4 MS 5.2...5.4 mm: 1.5...1.7 SVS max. mm: 4.3 XK mm: 17.0...19.

XK mm: 17.0...19.0 mm: 13.5...16.9 mm: 37.9...39.9 mm: 44.5...49.5

Remarks:

Overflow restriction 0.55 mm - Part No. ..303

Note inst. in remarks column

: VOL Test scheet

: 09.06.92 Edition : 18.07.89 replaces Calibrating oil : ISO-4113

Injection pump : VE6/11F1900L218-8

Type number : 0 460 416 065

Customer Part-No. :

Customer-specific information

Customer

: PENTA

Engine : TAMD 41 B

Power KW: 132

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil return temp.

with thermometer: 40...48 Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle holder

: 1 688 901 022 assembly

Opening

bar: 130.00...133.00 Pressure

Test inj. tubing : motornah

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1200 Charge press. hPa: 1000

Setting value mm: 3.30...3.70

Supply-pump pressure

Speed 1/min: 1200 Charge press hPa: 1000 Setting value bar: 5.90...6.50

Full-load del. with charge press.:

1/min: 1500 Speed Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 99.50...100.50 Dispersion cm3/: 5.0 1000s.: (5.0)

Full-load del. w/out charge press.:

1/min: 650 Speed

Del. quantity cm3/

1000s.: 66.50...67.50

Low-idle speed regulation

1/min: 325 Speed

Del. quantity cm3/

1000S.: 25.00...29.00 Del. quantity cm3/: 3.5 1000s.: (3.5)

Full-load speed regulation

Speed 1/min: 2050 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 34.00....40.00

Start:

Speed 1/min: 100 Del. quantity cm3/: 80.00...120.00 mind 1000s.: 80.00

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1200 3rd speed Charge press

hPa: 1000 mm: 3.30...3.70 mm: (2.80...4.20) TD travel

1/min: 800 4th speed

Charge press hPa: 1000

mm: 1.00...2.00 TD travel mm: (0.80...2.20)

1/min: 1900 5th speed

Charge press. hPa: 1000

mm: 4.00...4.80 TD travel mm: (3.70...5.10)

7.Rotacao 1/min: 1000 Charge press. hPa: 1000

TD travel mm: 2.303.10 mm: (2.003.40)	15th speed 1/min: 1200 Charge press. hPa: 1000
Supply-pump pressure characteristic:	Del. quantity cm3/: 102.50105.50 1000s.: (100.50107.50) 18th speed 1/min: 650
1st speed 1/min: 1900	Del. quantity cm3/: 66.5067.50
Charge press. hPa: 1000	1000s.: (64.0070.00)
Supply-pump .	20th speed 1/min: 800
pressure bar: 7.408.00	Charge press. hPa: 1000
2nd speed 1/min: 1200	Del. quantity cm3/: 88.0092.00
Charge press. hPa: 1000 - Supply-pump -	1000s.: (86.5093.50)
pressure bar: 5.906.50	Mech. shutoff:
3rd speed 1/min: 800	Mech. Abstellung:
Charge press. hPa: 1000	-
Supply-pump -	1st speed 1/min: 1900
pressure bar: 5.005.60	Charge press. hPa: 1000
	Del. quantity cm3/: 0.003.00
Overlow quantity at overflow valve:	1000s.: (0.003.00)
1st speed 1/min: 650	T Electr. shutoff:
Overflow : 41.7083.40	Ecectr. Shullott.
quantity cm3/10s: (41.7083.40)	1st speed 1/min: 325
2nd speed 1/min: 1900	- Del. quantity cm3/: 0.003.00
Charge press. hPa: 1000	1000s.: (0.003.00)
Overflow : 55.60139.00	Shutoff
quantity cm3/10s: (55.60139.00)	electromagnet volt: 12
Delivery-quant. and breakaway char.:	Idle delivery:
	1st speed
1nd speed 1/min: 300 -	Del. quantity cm3/: 25.0029.00
Charge air pressure setting -	1000s.: (22.0032.00)
point hPa: 200	Dispersion cm3/: 3.5
LDA-stroke mm: 4.5 Del. quantity cm3/: 78.5079.50	10005.: (3.5)
10005:: (72.0086,00)	
2nd speed 1/min: 2200	1000s.: (0.003.00)
Charge press. hPa: 1000	3rd speed 1/min: 400
Del. quantity cm3/: 0.003.00	<pre>Del. quantity cm3/: 5.0011.00</pre>
1000\$.: (0.003.00)	1000s.: (3.5012.50)
3rd speed 1/min: 2100	†
Charge press. hPa: 1000	Automatic starting fuel delivery:
Del. quantity cm3/: 12.0028.00 1000s.: (10.0030.00)	1st speed 1/min: 300
5th speed 1/min: 2050	Del. quantity cm3/: 70.00100.00
Charge press. hPa: 1000	1000s.: (70.00100.00)
Del. quantity cm3/: 34.0040.00	+
1000s.; (31.0043.00)	2nd speed 1/min: 500
9th speed 1/min: 1900 -	Del. quantity cm3/: 50.0070.00
Charge press. hPa: 1000	1000s.: (50.0070.00)
Del. quantity cm3/: 88.0092.00 1000s.: (86.0094.00)	/ /th speed 1/min: 100
12th speed 1/min: 1500	+ 4th speed
Charge press. hPa: 1000	10095.: (80.00120.00)
Del. quyntity cm3/: 99.50100.50	1
1000s.: (97.70102.30)	Mounting and assembly dimensions:
14th speed 1/min: 800	
Del. quantity cm3/: 69.5072.00 - 1000s.: (67.0074.00)	Designation K mm: -

```
KF mm: K-OT mm: 0.6...1.0 mm: 21.8...23.8 XL mm: 11.2...14.6 Ya mm: 53.1...60.9
```

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut (46)

Overflow restriction 0.55 mm - Part No. ..303

Note inst. in remarks column

Test scheet : CUM Edition : 04.06.92

replaces :-

Calibrating oil : ISO-4113

Injection pump : VE4/12F1100R123-1

Type number : 0 460 424 007 Customer Part-No. : 390 7653

Customer-specific information

Customer : CDC

Engine: 4 BT 390

Power KW: 93 Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Overflow restricti: 1 461 456 303

Calibrating—oil return temp. °C

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 016

Opening

Pressure bar: 207.00...210.00

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke mm: 2.0

mm: +-0.02(0.06)

Outlet : A

Injection-pump setting values Test specifications in parentheses Timing-device travel

Speed 1/min: 900

Setting value num: 2.30...2.70

Shutoff

electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 900

Setting value bar: 4.50...5.10

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 900

Del. quantity cm3/

1000s.: 85.70...86.70

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 4.0 1000s.: (4.5)

Low-idle speed regulation

Speed 1/min: 375

Del. quantity cm3/

1000s.: 18.50...24.50

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

Speed 1/min: 1220

Del. quantity cm3/

1000s.: 19.50...25.50

Shutoff

electromagnet Volt: 24

Start:

Speed 1/min: 100

Del. quantity cm3/: 97.00...147.00

mind 1000s.: 97.00

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100

TD travel mm: 3.10...3.90

mm: (2.80...4.20)

Shutoff Del. quantity cm3/: 19.50...25.50 1000S.: (16.50...28.50) electromagnet Volt: 24 1/min: 900 3rd speed 9th speed 1/min: 1100 mm: 2.30...2.70 Shutoff TD travel .mm: (1.80...3.20) Shutoff electromagnet Volt: 24
4th speed 1/min: 750
TD travel mm: 1.10...1.90 Shutoff mm: (0.80...2.20) electromagnet Volt: 24 Shutoff Del. quantity cm3/: 85.80...89.80 1000s.: (83.80...91.80) electromagnet Volt: 24 1/min: 900 12th speed Supply-pump pressure characteristic: Shutoff electromagnet Volt: 24 Del. quyntity cm3/: 85.70...85.70 1000s.: (83.20...89.20) 1/min: 750 1st speed Supply-pump bar: 3.80...4.40 pressure 20th speed 1/min: 600 Shutoff Shutoff electromagnet Volt: 24 2nd speed 1/min: 900 electromagnet Volt: 24 Del. quantity cm3/: 83.00...91.00 1000s.: (81.00...93.00) Supply-pump pressure bar: 4.50...5.10 Shutoff Mech. shutoff: electromagnet Volt: 24 Mech. Abstellung: 1/min: 1100 3rd speed Supply-pump pressure bar: 5.30...5.90 Shutoff 1000s.: (0.00...3.00) electromagnet Volt: 24 Shutoff electromagnet volt: 24 Overlow quartity at overflow valve: Electr. shutoff: 1st speed 1/min: 600 Shutoff 1/min: 375 1st speed Del. quantity cm3/: 0.00...3.00 electromagnet Volt: 24 : 41.70...83.40 Overflow 1000s : (0.00...3.00) cm3/10s: (26.70...98.40) 1/min: 1100 quantity Shutoff 2nd speed electromagnet volt: '-Shutoff electromagnet Volt: 24 Idle delivery: : 55.60...139.00 Overflow cm3/10s: (40.60...153.00) 1/min: 375 quantity | 1st speed Shutoff Delivery-quant. and breakaway char.: electromagnet Volt: 24 Del. quantity cm3/: 18.50...24.50 1000s.: (16.50...26.50) Dispersion cm3/: 5.5 2nd speed 1/min: 1270 Shutoff 1000s.: (7.0) electromagnet Volt: 24 1/min: 450 2nd speed Del. quantity cm3/: 0.00...3.00 Shutoff 1000s.: (0.00...3.00) electromagnet Volt: 24 1/min: 1200 4th speed Del. quantity cm3/: 0.00...4.00 Shutoff 1000s.: (0.00...4.00) electromagnet Volt: 24 Del. quantity cm3/: 15.00...55.00 1000s.: (15.00...55.00) 5th speed 1/min: 1220 Automatic starting fuel delivery: 1st speed 1/min: 130 Shutoff Shutoff electromagnet Volt: 24 electromagnet Volt: 24

Del. quantity cm3/: 97.00...147.00 1000s.: (100.00...150.00)

2nd speed 1/min: 200

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 45.00...85.00 1000s.: (45.00...85.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 97.00...147.00

1000s.: (97.00...147.00)

Shutoff electromagnet:

Cut-in

min voltage : 20.0 : 24.0 Rated voltage

Mounting and assembly dimensions:

Designation

K mm: -

KF mm: 5.0...5.4

MS mm: 1.4...1.6

SVS max. mm: 3.9 XK

mm: 18.8...20.8 mm: 13.2...16.6 XL

:

Remarks:

Note inst. in remarks column

Test scheet : CUM Edition : 04.06.92

replaces Calibrating oil : ISO-4113

: VE4/12F1250R123-10 Injection pump

Type number : 0 460 424 019 Customer Part-No. : 390 7656

Customer-specific information

Customer : CDC

Engine : 4 BTA 3.9

KW: 116 Power 1/min: 2500 Speed.

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil • C return temp.

with thermometer: 40.00...48.00 Electronically: 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 016 assembly

Opening.

Pressure bar: 207.00...210.00

Perforated-plate

mm: 0.5 diameter

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke mm: 1.7

mm: +-0.02(0.06)

Outlet

Injection-pump setting values Test specifications in parentheses Timing-device travel

1/min: 850 Speed

Setting value mm: 3.70...4.10

Shutoff

electromagnet Volt: 24

Supply-pump pressure

1/min: 850 Speed

Setting value bar: 5.90...6.50

Shutoff

electromagnet Volt: 24

Full-load del. with charge press .:

1/min: 1100

Del. quantity cm3/

1000s.: 90.50...91.50

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 4.0 1000s.: (4.5)

Low-idle speed regulation

1/min: 375 Speed

Del. quantity cm3/

1000s.: 22.00...28.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

1/min: 1340 Speed

Del. quantity cm3/

1000s.: 28.00...34.00

Shutoff

electromagnet Volt: 24

Start:

1/min: 100 Speed

Del. quantity cm3/: 105.00...145.00

1000s.: 105.0 mind

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1100 2nd speed

TD travel mm: 4.60...5.40

mm: (4.30...5.70)

Shutoff Del. quantity cm3/: 68.00...76.00 1000\$.: (66.00...78.00) electromagnet Volt: 24 3rd speed 1/min: 850 1/min: 1250 9th speed TD travel mm: 3.70...4.10 Shutoff mm: (3.20...4.60) electromagnet Volt: 24 Del. quantity cm3/: 84.50...87.50 1000s.: (83.00...89.00) Shutoff electromagnet Volt: 24 4th speed 1/min: 500 1/min: 850 11th speed TD travel mm: 1.60...2.40 Shutoff electromagnet Volt: 24
Del. quantity cm3/: 94.50...98.50
1000s.: (92.50...100.50)
12th speed 1/min: 1100 mm: (1.30...2.70) Shutoff electromagnet Volt: 24 Supply-pump pressure characteristic: Shutoff electromagnet Volt: 24 Del. quyntity cm3/: 90.50...91.50 1/min: 850 2nd speed Supply-pump 1000s.: (88.00...94.00) 1/min: 500 pressure bar: 5.90...6.50 20th speed Shutoff Shutoff electromagnet Volt: 24 3rd speed 1/min: 1100 electromagnet Volt: 24 Del. quantity cm3/: 82.00...90.00 1000s.: (80.00...92.00) Supply-pump bar: 6.70...7.30 pressure Shutoff Mech. shutoff: electromagnet Volt: 24 4th speed 1/min: 500 Mech. Abstellung: 4th speed Supply-pump pressure bar: 4.30...4.90 Shutoff electromagnet Volt: 24 Shutoff electromagnet volt: 24 Overlow quantity at overflow valve: Electr. shutoff: 1st speed 1/min: 500 Shutoff 1st speed 1/min: 375 electromagnet Volt: 24 Del. quantity cm3/: 0.00...3.00 Overflow : 41.70...83.40 1000s.: (0.00...3.00) cm3/10s: (26.70...98.40) 1/min: 1250 quantity Shutoff 2nd speed electromagnet volt: -Shutoff electromagnet Volt: 24 Idle delivery: Overflow : 55.60...139.00 cm3/10s: (40.60...153.00) quantity 1/min: 375 1st speed Shutoff electromagnet Volt: 24

Del. quantity cm3/: 22.00...28.00

1000s.: (20.00...30.00)

Dispersion cm3/: 5.5 Delivery-quant. and breakaway char.: 1/min: 1400 2nd speed 1000s.: (7.0) 1/min: 450 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.00...3.00 1000\$:: (0.00...3.00) 2nd speed Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.00...4.00 1/min: 1340 5th speed Shutoff 1000s.: (0.00...4.00) electromagnet Volt: 24 Del. quantity cm3/: 28.00...34.00 1000s.: (25.00...37.00) 8th speed 1/min: 1290 Automatic starting fuel delivery: 1/min: 130 1st speed Shutoff Shutoff electromagnet Volt: 24 electromagnet Volt: 24

Del. quantity cm3/: 105.00...145.00 1000s.: (105.00...145.00)

1/min: 250 2nd speed

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 65.00...105.00 1000s.: (65.00...105.00)

1/min: 100 4th speed

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 105.00...145.00 1000s.: (105.00...145.00)

Shutoff electromagnet:

Cut-in

min voltage : 20.0

Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

mm: -

mm: 5.0...5.4 KF

MS mm: 0.6...1.0

Remarks:

Note inst. in remarks column

Test scheet : CUM Edition : 10.06.92 replaces : 16.07.91 Calibrating oil : ISO-4113

Injection pump : VE4/12F1250R230 Type number : 0 460 424 026

Customer Part-No. :

Customer-specific information

Customer : CDC

Engine : 4 BT- 390 AUTOM.

Power KW: 77 1/min: 2800 Speed

TEST BENCH REQUIREMENTS

Calibrating-oil °C return temp.

with thermometer: 40...48 Electronically : 42...50

Inter press., per: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening |

bar: 250.00...253.00 Pressure

Perforated plate

mm: 0.5 diameter

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke mm: 1.66

mm: +-0.02(0.06)

Outlet : A

Injection-pump setting values Test specifications in parentheses Timing-device travel

Speed 1/min: 1100 Charge press. hPa: 1000

Setting value mm: 1.80...2.20

AFB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1100 hPa: 1000 Charge press

Setting value bar: 4.70...5.30

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 900 Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 69.50...70.50

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0 1000s.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500

Del. quantity cm3/ 1000s.: 36.50...37.50

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KSB/AFB valve Volt: 12

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 375

Del. quantity cm3/

1000s.: 8.00...14.00

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

Speed 1/min: 1500 Charge press hPa: 1000

Del. quantity cm3/ Shutoff 1000s.: 44.00...50.00 electromagnet Volt: 12 1/min: 1100 KSB/AFB 2nd speed valve Volt: 12 Charge press. hPa: 1000 Shutoff Supply-pump bar: 4.70...5.30 electromagnet Volt: 12 pressure KSB/AFB Start: valve Volt: 12 Shutoff electromagnet Volt: 12 4th speed 1/min: 1400 Speed 1/min: 100 Del. quantity cm3/: 40.00...120.00 mind 1000s.: 40.00 mind Charge press. hPa: 1000 KSB/AFB Supply-pump Valve Volt: 12 bar: 5.90...6,50 pressure Shutoff KSB/AFB electromagnet Volt: 12 Volt: 12 valve Shutoff Inspection-pump test specifications electromagnet Volt: 12 Test specifications in parentheses Overlow quantity at overflow valve: Timing device characteristic: 1st speed KSB/AFB 1/min: 500 1/min: 1400 2nd speed hPa: 1000 mm: 2.90...3.70 Volt: 12 Charge press valve TD travel Shutoff mm: (2.60...4.00) electromagnet Volt: 12 KSB/AFB : 41.70...83.40 Overflow Volt: 12 cm3/10s: (41.70...83.40) valve quantity Shutoff 2nd speed 1/min: 1400 electromagnet Volt: 12 Charge press. hPa: 1000 1/min: 1100 3rd speed KSB/AFB hPa: 1000 Charge press valve Volt: 12 TD travel mm: 1.80...2.20 Shutoff mm: (1.30...2.70) electromagnet Volt: 12 : 55.60...139.00 KSB/AFB Overflow cm3/10s: (55.60...139.00) valve Volt: 12 quantity Shutoff electromagnet Volt: 12 Delivery quant. and breakaway char.: 1/min: 900 4th speed hPa: 1000 Charge press mm: 0.30...1.10 TD travel 1/min: 700 1nd speed mm: (0.00...1.40) Charge-air pressure-setting hPa: 400 KSB/AFB point Volt: 12 valve mm: 6.0 LDA-stroke Shutoff KSB/AFB electromagnet Volt: 12 valve Volt: 12 mm: 0.00...6.40 TD travel Shutoff mm: (0.00...1.00) electromagnet Volt: 12 Del. quantity cm3/: 67.00...68.00 Shutoff 1000s.: (63.50...71.50) electromagnet Volt: 12 2nd speed 1/min: 1650 Supply-pump pressure characteristic: Charge press. hPa: 1000 KSB/AFB 1st speed 1/min: 500 Volt: 12 valve Charge press. hPa: 1000 Shutoff electromagnet Volt: 12
Del. quantity cm3/: 0.00...3.00
1000s.: (0.00...3.00) Supply-pump bar: 2.10...2.70 pressure KSB/AFB valve Volt: 12 1/min: 1500 5th speed Charge press. hPa: 1000

KSB/AFB		1	1st speed 1/min:	375
valve Volt:	12	Ţ	Del. quantity cm3/:	
Shutoff	12	T	1000c.	(0.003.00)
	40	Ť		(0.005.00)
electromagnet Volt:	12	†	KSB/AFB	
bei. quantity cm3/:	54.0060.00	+	valve Volt:	12
1000s.:	(51.0063.00)	1		
6th speed 1/min:		1	Idle delivery:	
Charge press. hPa:		1	Tate derivery.	
LOCATO	1000	T	1 1 /	フプロ
KSB/AFB	40	†	1st speed 1/min:	3/3
valve Volt:	12	+	KSB/AFB	
Shutoff		+	valve Volt:	12
electromagnet Volt:	12	1	Shutoff	
Del. quantity cm3/:		1	electromagnet Volt:	12
	(15.0055.00)	1	Del. quantity cm3/:	
		T		
		†		(6.0016.00)
Charge press. hPa:	1000	†	Dispersion cm3/:	
KSB/AFB		+	1000s.:	(7.0)
valve Volt:	12	+	2nd speed 1/min:	600
Shutoff	. —	1	KSB/AFB	
electromagnet Volt:	12	1	valve Volt:	12
		T		12
Del. quantity cm3/:		†	Shutoff	**
	(63.0069.00)	+	electromagnet Volt:	12
12th speed 1/min:	900	+	Del. quantity cm3/:	0.004.00
Charge press. hPa:	1000	1		(0.004.00)
KSB/AFB		1		12132171 10027
valve Volt:	12	T	Automotic stanting:	fuel del fuerra
	14	T	Automatic starting	ruet detivery:
Shutoff		+		
electromagnet Volt:	12	+	1st speed 1/min:	150
Del. quyntity cm3/:	69.5070.50	∔	KSB/AFB	
1000s.:	(67.0073.00)	1	valve Volt:	12
18th speed 1/min:		i	Timing valve Volt:	
KSB/AFB	J	Ŧ	Thing valve volt.	UE.
	40	†	Shutoff	46
valve Volt:	12	+	electromagnet Volt:	
Shutoff		+	Del. quantity cm3/:	
electromagnet Volt:	12	+	1000s.:	(40.00120.00)
Del. quantity cm3/:		1		
	(33.0041.00)	ĺ	2nd speed 1/min:	ገ ደብ
20th speed 1/min:		T	KSB/AFB	300
		T		40
Charge press. hPa:	7000	†	valve Volt:	12
KSB/AFB		+	Shutoff	
valve Volt:	12	+	electromagnet Volt:	12
Shutoff		1	Del. quantity cm3/:	
electromagnet Volt:	12	1		(0.0040.00)
Del. quantity cm3/:		T	10000	(0.0040.00/
		T	111 1 11.0	400
1000s.:	-	†	4th speed 1/min:	100
		+	KSB/AFB	
Mech. shutoff:		+	valve Volt:	12
Mech. Abstellung:		1	Shutoff	
100111 / 100000 (1011)		1	electromagnet Volt:	12
And proped 1/min.	4/00	T	bel magnet vott.	(0.00 400.00
1st speed 1/min:	1400	†	Del. quantity cm3/:	40.00120.00
Charge press. hPa:		+	1000S.:	(40.00120.00)
Del. quantity cm3/:	0.003.00	+		
1000s.:	(0.003.00)	+	Shutoff electromagni	et:
Shutoff	* H H T T T T T T T T T T T T T T T T T	1		- · ·
electromagnet volt:	12	1	Cut-in	
	16	T		10.0
KSB/AFB	40	†		10.0
valve Volt:	16	+	Rated voltage :	72.0
		+		
Electr. shutoff:		+	Mounting and assemb	ly dimensions:
		1		

Designation

Remarks:

: C.D.C. # 390 8182

* Correction at adjusting nut (46)

Heavy-duty fuel-injection pump for DI-engines: only test using timing-device-travel measuring device with metal jacket

Note inst. in remarks column

Test scheet : CUM

Edition : 11.06.92 : ISO-4113 Calibrating oil

: VE4/12F1250R239 Injection pump Type number : 0 460 424 030

Customer Part-No.: 391 1811

Customer-specific information

Customer : CDC

Engine : 4 BTA 3.9 AUTO

Power KW: 88 1/min: 2500 Speed

TEST BENCH REQUIREMENTS

Calibrating oil °C return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

bar: 250.00...253.00 Pressure

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.3

(from BDC): +0.02(0.04)

Start of delivery block mm: 1.95 Piston stroke

mm: +-0.02(0.06)

Outlet. : A

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1100 Speed

Charge press. hPa: 1000 Setting value mm: 2.10...2.50

Shutoff

electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1100 Charge press hPa: 1000

Setting value bar: 5,60...6.20

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

1/min: 850 Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 76.00...77.00

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 4.0

1000s.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500

Del. quantity cm3/ 1000s.: 56.00...57.00

Shutoff

electromagnet Volt: 24

Low-idle speed regulation

1/min: 375

Del. quantity cm3/

1000s.: 10.00...12.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

1/min: 1360 Speed Charge press hPa: 1000

Del. quantity cm3/

1000s.: 60.00...66.00

Shutoff

electromagnet Volt: 24

Start:

Speed 1/min: 100 Del. quantity cm3/: 70.00...140.00 mind 1000S.: 70.00

Shutoff

electromagnet Volt: 24

Charge press. hPa: 1000 Shutoff Inspection-pump test specifications Test specifications in parentheses electromagnet Volt: 24 Overflow : 55.60...139.00 Timing-davice characteristic: cm3/10s: (55.60...139.00) quantity 2nd speed Charge press TO travel 1/min: 1250 hPa: 1000 Delivery-quant. and breakaway char.: mm: 2.60...3.40 mm: (2.30...3.70) 1nd speed 1/min: 700 Charge-air pressure-setting point hPa: 450 Shutoff electromagnet Volt: 24
3rd speed 1/min: 1100
Charge press hPa: 1000
TD travel mm: 2.10...2.50
mm: (1.60...3.00) Shutoff electromagnet Volt: 24
Del. quantity cm3/: 72.00...73.00
1000S.: (68.50...76.50) Shutoff 1/min: 1550 2nd speed Charge press. hPa: 1000 Shutoff electromagnet Volt: 24 4th speed 1/min: 850 electromagnet Volt: 24
Del. quantity cm3/: 0.00...3.00
1000S.: (0.00...3.00)
3rd speed 1/min: 1510
Charge press. hPa: 1000
Shutoff Charge press hPa: 1000 TD travel mm: 0.70...1.50 mm: (0.40...1.80) Shutoff electromagnet Volt: 24 electromagnet Volt: 24
Del. quantity cm3/: 0.00...15.00
1000s.: (0.00...15.00)
4th speed 1/min: 1470 Supply-pump pressure characteristic: 1st speed 1/min: 500 Charge press. hPa: 1000 Supply-pump Charge press. hPa: 1000 bar: 3.00...3.60 pressure Shutoff electromagnet Volt: 24
Del. quantity cm3/: 15.00...55.00
1000S.: (15.00...55.00)
5th speed 1/min: 1360
Charge press. hPa: 1000
Shutoff Shutoff electromagnet Volt: 24 2nd speed 1/min: 850 Charge press. hPa: 1000 Supply-pump pressure bar: 4.60...5.20 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 60.00...66.00 electromagnet Volt: 24 3rd speed 1/min: 1100 1000s.: (57.00...69.00) 1/min: 1250 Charge press. hPa: 1000 9th speed Charge press. hPa: 1000 Shutoff Supply-pump pressure bar: 5.60...6.20 electromagnet Volt: 24
Del. quantity cm3/: 73.50...76.50
1000S.: (72.00...78.00)
10th speed 1/min: 1100 Shutoff electromagnet Volt: 24 4th speed 1/min: 1250 Charge press. hPa: 1000 Supply-pump Charge press. hPa: 1000 pressure bar: 6.20...6.80 Shutoff electromagnet Volt: 24
Del. quantity cm3/: 75.50...78.50
1000s.: (73.50...80.50) Shutoff electromagnet Volt: 24 Overlow quantity at overflow valve: 1/min: 850 12th speed Charge press. hPa: 1000 Shutoff 1st speed Shutoff 1/min: 500 electromagnet Volt: 24
Del. quyntity cm3/: 76.00...77.00
1000S.: (73.50...79.50)
18th speed 1/min: 500 electromagnet Volt: 24 : 41.70...83.40 cm3/10s: (41.70...83.40) Overflow quantity

2nd speed

1/min: 1250

Shutoff electromagnet Volt: 24
Del. quantity cm3/: 56.00...57.00
1000s.: (52.50...60.50)
20th speed 1/min: 500 Charge press. hPa: 1000 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 89.50...99.50 1000s.: -Mech. shutoff: Mech. Abstellung: 1/min: 1400 1st speed Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) electromagnet volt: 24 Electr. shutoff: 1/min: 400 1st speed Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Idle delivery: 1st speed 1/min: 375 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 10.00...12.00 1000s.: (6.00...16.00) Dispersion cm3/: 5.5 1000s.: (7.0) 1/min: 450 2nd speed Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.00...4.00 1000s.: (0.00...4.00) Automatic starting fuel delivery: 1st speed 1/min: 250 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 90.00...160.00 1000s.: (90.00...160.00) 1/min: 350 2nd speed Shutoff electromagnet Volt: 24 Del. quantity cm3/: 50.00...90.00 1000s.: (50.00...90.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 70.00...140.00 1000s.: (70.00...140.00)

Shutoff electromagnet: Cut-in min voltage : 20.0 Rated voltage : 24.0 Mounting and assembly dimensions: Designation mm: -KF mm: K-OT SVS max. mm: 2.0 Ya mm: 34.8...38.8 Yb mm: 38.0...43.4 Remarks:

Note inst. in remarks column

Test scheet : PER : 15.06.92 Edition replaces : 08.11.88 Calibrating oil : ISO-4113

Injection cump : VE4/12F1300R280 : 0 460 424 037 Type number

Customer-specific information Customer : PERKINS

: T4.40 LKW Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.35

Calibrating nozzle-holder

assembly : 1 688 901 020

Opening

bar: 172.00...175.00 Pressure

Perforated-plate

diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery

Indicator setting Piston stroke mm: 1.0 Out let : A

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 950 Charge press. hPa: 1000 Setting value mm: 1.80...2.20

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 950 Charge press hPa: 1000

Setting value bar: 4.60...5.20

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1000 Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 93.00...94.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0 1000s.: (4.0)

Full-load del. w/out charge press.:

1/min: 700 Speed Del. quantity cm3/

1000s.: 84.50...85.50

Shutoff

electromagnet Voit: 12

Low-idle speed regulation

1/min: 300

Del. quantity cm3/ 1000s.: 22.00...26.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.0 1000s.: (5.0)

Full-load speed regulation

Speed 1/min: 1430 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 47.00...53.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 95.00...145.00

1000s.: 95.00 mind

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed	Shutoff
Charge press hPa: 1000	- electromagnet Volt: 12
TD travel mm: 2.002.80	- Del. quantity cm3/: 89.0090.00
mm: (1.703.10)	1000s.: (86.5092.50)
electromagnet Volt: 12	- 2nd speed 1/min: 1560
2nd speed 1/min: 950	Charge press. hPa: 1000
Charge press hPa: 1000	- Shutoff
TD travel mm: 1.802.20	electromagnet Volt: 12
mm: 1.302.70	Del. quantity cm3/: 0.003.00
Shutoff	1000s.: (0.003.00)
electromagnet Volt: 12	3rd speed 1/min: 1500
3rd speed 1/min: 500	- Charge press. hPa: 1000
Charge press hPa: 1000	- Shutoff
TD travel mm: 0.601.40	electromagnet Volt: 12
mm: 0.301.70	- Del. quantity cm3/: 14.0022.00
Shutoff	- 1000s.: (11.0025.00)
electromagnet Volt: 12	- 4th speed 1/min: 1430
_	Charge press. nPa: 1000
Supply-pump pressure characteristic:	- Shutoff
the state of the s	- electromagnet Volt: 12
1st speed 1/min: 1300	Del. quantity cm3/: 47.0053.00
Charge press. hPa: 1000	1000\$:: (44.0056.00)
Supply—pump	- 5th speed 1/min: 1300
•	Charge press. hPa: 1000
Shutoff - 12	Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
2nd speed 1/min: 950	- Del. quantity cm3/: 87.7091.30
Charge press. hPa: 1000	- 1000s.: (86.5092.50)
Supply-pump -	- 6th speed 1/min: 1000
pressure bar: 1.802.20	- Charge press. hPa: 1000
Shutoff	- Shutoff
electromagnet Volt: 12	- electromagnet Volt: 12
3rd speed 1/min: 850	- Del. quantity cm3/: 93.0094.00
Supply-pump	1000s.: (90.5096.50)
pressure bar: 0.601.40	- 7th speed 1/min: 700
Shutoff	- Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
etectionagnet vott. 12	
Overlay months to at avention valves	- Del. quantity cm3/: 84.5085.50
Overlow quantity at overflow valve:	- 1000s.: (82.0088.00)
4-4 4 44 34 500	- 8th speed 1/min: 700
1st speed 1/min: 500	Charge press. hPa: 1000
Shutoff	- Shutoff
electromagnet Volt: 12	- electromagnet Volt: 12
Overflow : 41.7083.40	- Del. quantity cm3/: 92.0096.00
quantity cm3/10s: (41.7083.40)	- 1000s.: (91.0097.00)
2nd speed 1/min: 1300 4	- 9th speed 1/min: 500
Charge press. hPa: 1000	- Shutoff
Shutoff	electromagnet Volt: 12
electromagnet Volt: 12	Del. quantity cm3/: 75.5079.50
Overflow : 55.50139.00	1000s.: (74.5080.50)
quantity cm3/10s: (55.50139.00)	10003 (14.5000.507
qualitity ulb/ (us. (JJ.)U(JF.UU)	- - Mech. shutoff:
Not from the most band banden to them.	- Mech. Shuloir:
Delivery-quant. and breakaway char.:	- Mech. Abstellung:
betivery quant. and breakaway than:	- Mech. Abstellung:
	Mech. Abstellung: - 1st speed 1/min: 1300
1nd speed 1/min: 700	Mech. Abstellung: - 1st speed 1/min: 1300 - Charge press. hPa: 1000
1nd speed 1/min: 700 Charge-air pressure-setting	Mech. Abstellung: - 1st speed 1/min: 1300 - Charge press. hPa: 1000 Del. quantity cm3/: 0.003.00
1nd speed 1/min: 700 Charge-air pressure-setting point hPa: 300	Mech. Abstellung: - 1st speed 1/min: 1300 - Charge press. hPa: 1000
1nd speed 1/min: 700 Charge-air pressure-setting	Mech. Abstellung: - 1st speed 1/min: 1300 - Charge press. hPa: 1000 Del. quantity cm3/: 0.003.00

Electr. shutoff: 1st speed 1/min: 300 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Idle delivery: 1/min: 300 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 22.00...26.00 1000\$.: (19.00...29.00) Dispersion cm3/: 5.0 1000s.: (5.0) 1/min: 350 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 9.00...15.00 1000s.: (7.00...17.00) 3rd speed 1/min: 400 3rd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...2.60 1000s.: (0.00...2.60) Automatic starting fuel delivery: 1st speed 1/min: 150 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 95.00...145.00 1000S.: (95.00...145.00) 1/min: 250 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 62.00...72.00 1000s.: (62.00...72.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 95.00...145.00 1000s.: (95.00...145.00) Shutoff electromagnet: Cut-in : 10.0 min voltage Rated voltage : 12.0

Yb mm: 47.2...55.6 * Correction at adjusting nut (46)

Mounting and assembly dimensions: Designation K mm: 3.2...3.4 KF mm: K-OT mm: 1.1...1.5 mm: 37.2...39.2 MS

E06

Ya

Note inst. in remarks column

Test scheet : CAS

Edition : 10.06.92 replaces : 12.07.89 Calibrating oil : ISO-4113

: VE4/12F1100R226-7 Injection pump Type number : 0 460 424 046

Customer Part-No. :

Customer-specific information

Customer : CASE

: 4 BT-390 580K Engine

TEST BENCH REQUIREMENTS

Calibrating oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

bar: 250.00...253.00 Pressure

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery

Prestroke mn: 0.3

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke mm: 1.8

mm: +-0.02(0.06)

Outlet : A

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 900 Setting value mm: 2.30...2.70

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 900

Setting value bar: 4.10...4.70

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 750 Speed

Del. quantity cm3/

1000s.: 63.50...64.50

Shutoff

electromagnet Volt: 12 cm3/: 4.0Dispersion 1000s.: (4.5)

Low-idle speed regulation

1/min: 475 Speed

Del. quantity cm3/

1000s.: 6.00...12.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

1/min: 1160 Speed

Del. quantity cm3/ 1000s.: 31.50...38.50

Shutoff

electromagnet Volt: 12

Start:

1/min: 100

Del. quantity cm3/: 70.00...120.00 mind 1000s.: 70.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100

TD travel mm: 3.10...3.90

mm: (2.80...4.20)

Shutoff

electromagnet Volt: 12 1/min: 900 3rd speed

	2.302.70	Shutoff
	(1.803.20)	electromagnet Volt: 12
Shutoff	+	9th speed 1/min: 1100
electromagnet Volt:	12 +	Shutoff
4th speed 1/min:	650 +	electromagnet Volt: 12
TD travel mm:	0.701.50	Del. quantity cm3/: 60.5063.50
	(0.401.80)	1000s.: (59.0065.00)
Shutoff	+	10th speed
electromagnet Volt:	12	Shutoff
	+	electromagnet Volt: 12
Supply-pump pressure	e characteristic:	Del. quantity cm3/: 60.8063.80
	+	1000s.: (58.8065.80)
1st speed 1/min:	500 +	12th speed 1/min: 750
Supply-pump	<u> </u>	Shutoff
	2.403.00	electromagnet Volt: 12
Shucoff	_	Del. quyntity cm3/: 63.5064.50
electromagnet Volt:	12 🗼	1000\$.: (61.0067.00)
2nd speed 1/min:		20th speed 1/min: 500
Supply-pump	1	Shutoff
pressure bar:	4.104.70	electromagnet Volt: 12
Shutoff	1	Del. quantity cm3/: 61.0069.00
electromagnet Volt:	12	10008.: (59.0071.00)
3rd speed 1/min:	1100	1000011 (3710011111100)
Supply-pump	1	Mech. shutoff:
	4.905.50	Mech. Abstellung:
Shutoff	1	riculti hosecttang.
electromagnet Volt:	12	1st speed
a too thomas need to to to	1	Del. quantity cm3/: 0.003.00
Overlow quantity at	overflow valve:	1000s.: (0.003.00)
ever ton quarterey at	1	Shutoff
1st speed 1/min:	500	electromagnet volt: 12
Shutoff	1	cecer anagrae voer. 12
electromagnet Volt:	12	Electr. shutoff:
	41.7083.40	Liecti. Silatori.
quantity cm3/10s:		1st speed 1/min: 475
2nd speed 1/min:		Del. quantity cm3/: 0.003.00
Shutoff	I	1000s.: (0.003.00)
electromagnet Volt:	12 I	10003.1 (0.005.00)
Overflow :	55.60139.00	Idle delivery:
quantity cm3/10s:	(55 kg 130 gg) I	tate detivery.
quarterty clib/10s.	[]	1st speed 1/min: 475
Delivery quant. and	hreakaway chan:	Shutoff
beenvery quarter and	Di Caraway Chai	electromagnet Volt: 12
	I	Del. quantity cm3/: 6.0012.00
2nd speed 1/min:	1250 I	10005.: (4.0014.00)
Shutoff	I	
electromagnet Volt:	12 I	Dispersion cm3/: 5.5 1000s.: (7.0)
Del. quantity cm3/:		
1000c	(0.003.00)	2nd speed 1/min: 550 Shutoff
3rd speed 1/min:		
Shutoff	1100	electromagnet Volt: 12
	12	Del. quantity cm3/: 0.004.00
electromagnet Volt:		1000s.: (0.004.00)
Del. quantity cm3/:		Shutoff
	(10.0040.00)	electromagnet Volt: 12
5th speed 1/min:	1100 +	Andreas Administration Post 1911
Shutoff	12	Automatic starting fuel delivery:
electromagnet Volt:		Ant
Del. quantity cm3/:		1st speed 1/min: 130
1000S.;	(29.0041.00)	Shutoff
	+	electromagnet Volt: 12

Del. quantity cm3/: 70.00...130.00 1000s.: (70.00...130.00)

1/min: 240 2nd speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 30.00...70.00 1000s.: (30.00...70.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12
Del. quantity cm3/: 70.00...120.00
1000s.: (70.00...120.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 : 12.0 Rated voltage

Mounting and assembly dimensions:

Designation

K mn: -

mm: 5.0...5.4 mm: 1.1...1.5 KF MS

SVS max. mm: 3.2

mm: 34.8...38.8 mm: 40.2...45.6 Ya Yb

Remarks:

: CASE # 391 4487

Note inst. in remarks column

Test scheet : CUM

: 11.06.92 Edition replaces : 16.05.89 Calibrating oil : ISO-4113

Injection bumb : VE4/12F1400R239-2

Type number : 0 460 424 051

Customer Part-No. :

Customer specific information

Customer : CDC

Engine : 4 BTA 3.9 AUTO

Power KW: 88 1/min: 2800 Speed

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 027

Opening |

bar: 250.00...253.00 Pressure

Perforated plate

mm: 0.5 diameter

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery

Prestroke mm: 0.3

(from BDC): +0.02(0.04)

Start of delivery block Piston stroke mm: 1.95

mm: +0.02(0.06)

Outlet.

Injection-pump setting values

Test specifications in parentheses

Timing-device travel

Sceed 1/min: 1100 Charge press. hPa: 1000

Setting value mm: 2.20...2.60

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1100 Speed Charge press hPa: 1000

Setting value bar: 5.70...6.30

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 750 Speed Charge press. hPa: 1000 Del. quantity cm3/

1000s.: 86.00...87.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.01000s.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500

Del. quantity cm3/

1000s.: 58.50...59.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 400

Del. quantity cm3/

1000s.: 4.00...6.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

1/min: 1480 Speed Charge press hPa: 1000

Del. quantity cm3/

1000s.: 61.50...67.50

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 70.00...140.00 mind 1000s.: 70.00 mind electromagnet Volt: 12 : 69.50...111.20 Shutoff Overflow cm3/10s: (69.50...111.20) electromagnet Volt: 12 quantity 1/min: 1400 2nd speed Charge press. hPa: 1000 Inspection-pump test specifications Test specifications in parentheses Shutoff electromagnet Volt: 12 : 83.40...180.70 Timing-device characteristic: Overflow quantity cm3/10s: (83.40...180.79) 1/min: 1250 hPa: 1000 mm: 2.80...3.60 2nd speed Charge press Delivery-quant. and breakaway char .: TD travel mm: (2.50...3.90) Shutoff 1/min: 700 1nd speed electromagnet Volt: 12 Charge-air pressure-setting hPa: 330 1/min: 1100 3rd speed point Charge press hPa: 1000 LDA-stroke TD travel mm: 2.20...2.60 Shutoff mm: (1.70...3.10)electromagnet Volt: 12 Del. quantity cm3/: 72.00...73.00 1000s.: (68.50...76.50) Shutoff electromagnet Volt: 12 4th speed 1/min: 850 1/min: 1640 2nd speed Charge press. hPa: 1000 Shutoff Charge press hPa: 1000 mm: 0.70...1.50 TD travel mn: (0.40...1.80) electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet Volt: 12 ord speed 1/min: 1600 Charge press. hPa: 1000 Shutoff Supply-pump pressure characteristic: 1st speed 1/min: 500 electromagnet Volt: 12 Charge press. hPa: 1000 Del. quantity cm3/: 0.00...15.00 Supply-pump 1000s.: (0.00...15.00) bar: 3.20...3.80 1/min: 1560 pressure 4th speed Shutoff Charge press. hPa: 1000 electromagnet Volt: 12 Shutoff electromagnet Volt: 12
Del. quantity cm3/: 15.00...55.00
1000s.: (15.00...55.00) 2nd speed 1/min: 850 Charge press. hPa: 1000 Supply-pump bar: 4.70...5.30 pressure 1/min: 1480 5th speed Shutoff Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 1/min: 1100 3rd speed electromagnet Volt: 12 Charge press. hPa: 1000 Del. quantity cm3/: 61.50...67.50 1000s.: (58.50...70.50) Supply-pump pressure bar: 5.70...6.30 1/min: 1400 9th speed Charge press. hPa: 1000 Shutoff Shutoff electromagnet Volt: 12 4th speed 1/min: 1250 Charge press. hPa: 1000 electromagnet Volt: 12 Del. quantity cm3/: 73.00...76.00 1000s.: (71.50...77.50) Supply-pump bar: 6.30...6.90 pressure 1/min: 1100 10th speed Shutoff Charge press. hPa: 1000 electromagnet Volt: 12 Shutoff electromagnet Volt: 12
Del. quantity cm3/: 79.00...82.00
1000s.: (77.00...84.00)
12th speed 1/min: 750 Overlow quantity at overflow valve: 1st speed 1/min: 500 Charge press. hPa: 1000

Shutoff

Shutoff electromagnet Volt: 12 Del. quyntity cm3/: 86.00...87.00 1000s.: (83.50...89.50) 18th speed 1/min: 500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 58.50...59.50 1000s.: (55.00...63.00) 1/min: 500 20th speed Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 98.00...108.00 1000s.: -Mech. shutoff: Mech. Abstellung: 1/min: 1400 1st speed Charge press. hPa: 1000 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) electromagnet volt: 12 Electr. shutoif: 1st speed 1/min: 400 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Idle delivery: 1/min: 400 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 4.00...6.00 1000s.: (0.00...10.00) Dispersion cm3/: 5.5 1000s.: (7.0) 2nd speed 1/min: 450 Shutotf electromagnet Volt: 12 Del. quantity cm3/: 0.00...4.00 1000s.: (0.00...4.00) Automatic starting fuel delivery: 1st speed 1/min: 230 Shutoff electromagnet Volt: 92 Del. quantity cm3/: 80.00...150.00 1000s.: (80.00...150.00) 2nd speed 1/min: 400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 40.00...80.00

1000s.: (40.00...80.00)

4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00...140.00 1000s.: (70.00...140.00) Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation mm: -KF mm: K-OT MS mm: 1.0...1.4 SVS max. mm: 2.2 mm: 7.2 LDA stroke mm: 21.8...23.8 XL mm: 11.5...14.9 mm: 34.8...38.8 Ya mm: 41.7...47.1 Yb Remarks: Overflow restriction 0.75 mm - Part No. ..343,..344 Operate control lever after each manifold-pressure compensator pressure change. * Correction at adjusting nut (46)

Note inst. in remarks column

Test scheet

Edition : 03.06.92

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/12F1250R374 : 0 460 424 057 Type number

Customer Part-No.: 391 7539

Customer-specific information

Customer : CDC

: 4 BTA 3.9 IND Engine

KW: 93 Power 1/min: 2500 Speed

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil

return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Openina |

bar: 250.00...253.00 Pressure

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00

x Length mm: 840

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Start of delivery block

Piston stroke mm: 1.55

mm: +-0.02(0.06)

Outlet

Injection-pump setting values

Test specifications in parentheses

Timing-device travel

Speed 1/min: 850

Charge press. hPa: 1000 Setting value mm: 4.00...4.40

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 850 Charge press hPa: 1000

Setting value bar: 5.60...6.20

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 850 Speed

Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 101.00...102.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0

1000s.: (4.5)

Full-load del. w/out charge press.:

1/min: 500 Speed

Del. quantity cm3/

1**000**s.: 84.50...85.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 375 Speed

Del. quantity cm3/

1000s.: 8.00...14.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

Speed 1/min: 1130

Charge press hPa: 1000 Del. quantity cm3/

1000s.: 61.00...67.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 60.00...130.00

mind 1000s.: 60.00

Shutoff Overflow : 55.60...139.00 electromagnet Volt: 12 quantity cm3/10s: (40.60...153.00) Inspection pump test specifications Test specifications in parentheses Delivery-quant. and breakaway char.: Timing-device characteristic: 1nd speed 1/min: 700* Charge-air pressure-setting 1/min: 1100 2nd speed point hPa: 350 hPa: 1000 Charge press TD travel LDA-stroke mm: 6.6 mm: 4.90...5.70 Shutoff electromagnet Volt: 12
Del. quantity cm3/: 94.50...95.50
1000S.: (91.00...99.00)
2nd speed 1/min: 1240
Charge press. hPa: 1000
Shutoff mm: (4.60...6.00) Shutoff electromagnet Volt: 12 3rd speed 1/min: 850 Charge press hPa: 1000 mm: 4.00...4.40 mm: (3.50...4.90) TD travel electromagnet Volt: 12 Del. quantity cm3/: 0.00...15.00 1000s.: (0.00...15.00) Shutoff electromagnet Volt: 12 1/min: 500 4th speed 4th speed 1/min: 1200 Charge press hPa: 1000 Charge press. hPa: 1000 TD travel mm: 1.80...2.60 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.00...55.00 1000s.: (15.00...55.00) mm: (1.50...2.90) Shutoff electromagnet Volt: 12 1/min: 1100 5th speed Charge press. hPa: 1000 Supply-pump pressure characteristic: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 90.00...93.00 1000s.: (88.50...94.50) 1st speed 1/min: 500 Charge press. hPa: 1000 Supply-pump tin speed 1/min: 500 Charge press. hPa: 1000 Shutoff pressure bar: 4.00...4.60 Shutoff electromagnet Volt: 12 2nd speed 1/min: 850 Charge press. hPa: 1000 Supply-pump pressure bar: 5.60...6.20 Charge press. hPa: -Shutoff electromagnet Volt: 12 Shutoff 3rd speed 1/min: 1100 electromagnet Volt: 12 Del. quantity cm3/: 84.50...85.50 1000S.: (81.00...89.00) 12th speed 1/min: 850 Charge press. hPa: 1000 Shutoff Charge press. hPa: 1000 Supply-pump pressure bar: 6.70...7.30 Shutoff electromagnet Volt: 12 electromagnet Volt: 12 Del. quyntity cm3/: 101.00...102.00 1000s.: (98.50...104.50) Overlow quantity at overflow valve: 1/min: 500 1st speed Charge press. hPa: - Shutoff Mech. shutoff: Mech. Abstellung: electromagnet Volt: 12 : 41.70...83.40 quantity cm3/10s: (26.70...98.40) 2nd speed 1/min: 1250 Charge press. hPa: 1000 Shutoff 1st speed 1/min: 1250 Charge press. hPa: 1000 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet Volt: 12 electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 375 Charge press. hPa: -

Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

Shutoff

electromagnet volt: -

1dte delivery:

1st speed 1/min: 375

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 8.00...14.00

1000s.: (6.00...16.00)

cm3/: 5.5 Dispersion

1000s.: (7.0)

2nd speed 1/min: 450

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 0.00...4.00

1000s.: (0.00...4.00)

Automatic starting fuel delivery:

1/min: 130 1st speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 70.00...140.00

1000s.: (70.00...140.00)

2nd speed 1/min: 230

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 20.00...60.00 1000s.: (20.00...60.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 60.00...130.00

1000s.: (60.00...130.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mn: -

KF mm: 5.0...5.4 mm: 1.0...1.4 MS

SVS max. mm: 2.4 LDA stroke mm: 6.6

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut (46)

Note inst. in remarks column

Test scheet : CUM

: 03.06.92 Edition

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/12F1250R373-2

: 0 460 424 060 Type number

Customer Part-No.: 391 7030

Customer-specific information

Customer : CDC

: 4 BT 3.9 IND. Engine

KW: 63 1/min: 2500 Power Speed

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

bar: 250.00...253.00 Pressure

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840

x Length

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Start of delivery block

Piston stroke mm: 1.8

mm: +-0.02(0.06)

: A Outlet

Injection-pump setting values

Test specifications in parentheses

Timing-device travel

1/min: 900

Setting value mm: 2.00...2.40

Shutof#

electromagnet Volt: 24

Supply-pump pressure

1/min: 900 Speed

Setting value bar: 4.60...5.20

Shutoff

electromagnet Volt: 24

Full-load del. w/out charge press.:

1/min: 1100 Speed

Del. quantity cm3/

1000s.: 57.50...58.50

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 4.0

1000s.: (4.5)

Low-idle speed regulation

1/min: 335 Speed

Del. quantity cm3/ 1000s.: 8.00...14.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

1/min: 1300 Speed

Del. quantity cm3/

1000s.: 40.00...46.00

Shutoff

electromagnet Volt: 24

Start:

1/min: 100 Speed

Del. quantity cm3/: 70.00...120.00

1000s.: 70.00 mind

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1100 2nd speed

mm: 2.90...3.70 TD travel mm: (2.60...4.00)

Shutoff

electromagnet Volt: 24

1/min: 900 mm: 2.00...2.40 9th speed Shutoff 3rd speed 1/min: 1250 TD travel electromagnet Volt: 24
Del. quantity cm3/: 55.50...58.50
1000s.: (54.00...60.00) mm: (1.50...2.90) Shutoff electromagnet Volt: 24 4th speed 1/min: 750 1/min: 750 11th speed TD travel mm: 0.80...1.60 Shutoff electromagnet Volt: 24
Del. quantity cm3/: 55.50...59.50
1000s.: (53.50...61.50)
12th speed 1/min: 1100 mm: (0.50...1.90) Shutoff electromagnet Volt: 24 Shutoff Supply-pump pressure characteristic: 1st speed 1/min: 500 Supply-pump bar: 2.70...3.30 pressure Shutoff Shutoff electromagnet Volt: 24 Del. quantity cm3/: 49.00...57.00 1000s.: (47.00...59.00) electromagnet Volt: 24 1/min: 900 2nd speed Supply-pump pressure bar: 4.60...5.20 Shutoff Mech. shutoff: electromagnet Volt: 24 3rd speed 1/min: 1100 Mech. Abstellung: Supply-pump bar: 5.40...6.00 pressure Shutoff 1000s.: (0.00...3.00) electromagnet Volt: 24 Shutoff electromagnet volt: 24 Overlow quantity at overflow valve: Electr. shutoff: 1st speed Shutoff 1/min: 500 electromagnet Volt: 12 : 41.70...83.40 Overflow 1000s.: (0.00...3.00) cm3/10s: (26.70...98.40) 1/min: 1250 quantity Shutoff 2nd speed electromagnet volt: -Shutoff electromagnet Volt: 12 Overflow : 55.60...139.00 Idle delivery: cm3/10s: (40.60...153.00) quantity 1st speed 1/min: 335 Shutoff electromagnet Volt: 24
Del. quantity cm3/: 8.00...14.00 Delivery-quant. and breakaway char.: 1000s.: (6.00...16.00) cm3/: 5.5 1000s.: (7.0) 1/min: 500 1/min: 1370 2nd speed Dispersion Shutoff electromagnet Volt: 24 2nd speed Del. quantity cm3/: 0.00...15.00 1000s.: (0.00...15.00) Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.00...4.00 1/min: 1330 4th speed Shutoff 1000s.: (0.00...4.00) electromagnet Volt: 24 Del. quantity cm3/: 15.00...55.00 Automatic starting fuel delivery: 1000s.: (15.00...55.00) 1/min: 1300 5th speed 1st speed 1/min: 130 Shutoff Shutoff electromagnet Volt: 24 Del. quantity cm3/: 75.00...125.00 1000s.: (75.00...125.00) electromagnet Volt: 24 Del. quantity cm3/: 40.00...46.00 1000s.: (37.00...49.00)

2nd speed 1/min: 300

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 40.00...80.00 1000s.: (40.00...80.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 24
Del. quantity cm3/: 70.00...120.00
10005:: (70.00...120.00)

Shutoff electromagnet:

Cut-in

: 20.0 : 24.0 min voltage Rated voltage

Mounting and assembly dimensions:

:

Designation

mm: -

mm: 5.0...5.4 mm: 0.9...1.1 KF MS

Remarks:

Note inst. in remarks column

Test scheet

Edition : 04.06.92

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/12F1100R374-1

Type number : 0 460 424 063

Customer Part-No.: 391 7020

Customer-specific information

: CDC Customer

Engine : 4 BTA 3.9 IND.

Power KW: 84 1/min: 2200 Speed

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil °C return temp.

with thermometer : 40.00...48.00 : 42.00...50.00 Electronically

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

bar: 250.00...253.00 Pressure

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00

x Length

Start of delivery

mm: 0.3 Prestroke

(from BDC): +0.02(0.04)

Start of delivery block Piston stroke mm: 1.55

mm: +0.02(0.06)

Outlet ; D

Injection-pump setting values Test specifications in parentheses Timing-device travel

Speed 1/min: 850 Charge press. hPa: 1003

Setting value mm: 4.00...4.40

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 850 Speed Charge press hPa: 1000

Setting value bar: 5.60...6.20

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 850 Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 84.50...85.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0 1000s.: (4.5)

Full-load del. w/out charge press.:

1/min: 500 Speed

Del. quantity cm3/ 1000s.: 63.50...64.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 375

Del. quantity cm3/

1000s.: 8.00...14.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

Speed 1/min: 1100 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 77.50...80.50

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 60.00...130.00

mind 1000s.: 60.00

Shutott	+	Overflow :	55.60139.00
electromagnet Volt:	12 +	quantity cm3/10s:	(40.60153.00)
	+	•	
Inspection-pump test	specifications +	Delivery-quant. and	breakaway char.
Test specifications			,
	1		
Timing device charac	teristic:	1nd speed 1/min:	700+
Thing device charac			
2nd speed 1/min:	1150 T	Charge-air pressure	-260 HB
		point hPa:	
Charge press hPa:			6.6
	5.206.00	Shutoff	
	(4.906.30)	electromagnet Volt:	12
Shutoff	-	Del. quantity cm3/:	84.5085.50
electromagnet Volt:	12		(82.0088.00)
3rd speed 1/min:		2nd speed 1/min:	
Charge press hPa:		Charge press. hPa:	
	4.004.40	Shutoff	1000
	(3.504.90)		12
	(3.)04.90)	electromagnet Volt:	
Shutoff	12	Del. quantity cm3/:	
electromagnet Volt:			(0.003.00)
4th speed 1/min:		3rd speed 1/min:	
Charge press hPa:		Charge press. hPa:	1000
TD travel mm:	1.802.60	Shutoff	
	(1.502.90)	electromagnet Volt:	12
Shutoff	1	Del. quantity cm3/:	
electromagnet Volt:	12		(15.0055.00)
ctetti Gilagiict Vott.	T		
C	T	5th speed 1/min:	
Supply-pump pressure	characteristic:	Charge press. hPa:	1000
	+	Shutoff	
1st speed 1/min:		electromagnet Volt:	12
Charge press. hPa:	1000 +	Del. quantity cm3/:	63.0069.00
Supply-pump	+		(60.0072.00)
	4.004.60	9th speed 1/min:	
Shutoff	1	Charge press. hPa:	
electromagnet Volt:	12	Shutoff	1000
2nd speed 1/min:			10
		electromagnet Volt:	77 50 00 50
Charge press. hPa:	1000	Del. quantity cm3/:	77.5080.50
Supply-pump	.		(76.0082.00)
	5.606.20	10th speed 1/min:	
Shutoff	+	Charge press. hPa:	1000
electromagnet Volt:	12 +	Shutoff	
3rd speed 1/min:		electromagnet Volt:	12
Charge press. hPa:		Del. quantity cm3/:	
Supply-pump	1		(77.5084.50)
	6.907.50		
	0.30r.30 T	12th speed 1/min:	
Shutoff	40 †	Charge press. hPa:	1000
electromagnet Volt:	12 +	Shutoff	
	+	electromagnet Volt:	
Overlow quantity at	overflow valve:	Del. quyntity cm3/:	84.5085.50
	4		(82.0088.00)
1st speed 1/min:	500 4	18th speed 1/min:	
Charge press. hPa:	•	Shutoff	300
Shutoff	Ţ	electromagnet Volt:	12
	12		
electromagnet Volt:		Del. quantity cm3/:	
	41.7083.40	1000S.:	(60.0068.00)
quantity cm3/10s:			
2nd speed 1/min:		Mech. shutoff:	
Charge press. hPa:	1000 +	Mech. Abstellung:	
Shutoff	1	3	
electromagnet Volt:	12 +	1st speed 1/min:	1100
	•		

Charge press. hPa: 1000

Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

Shutoff

electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 375 Charge press. hPa: -

Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

Shutoff

electromagnet volt: -

Idle delivery:

1st speed 1/min: 375

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 8.00...14.00

1000s.: (6.00...16.00)

cm3/: 5.5Dispersion

1000s.: (7.0) 1/min: 450 2nd speed

Shutoff

Electromagnet Volt: 12

Del. quantity cm3/: 0.00...4.00

1000s.: (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 130

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 60.00...130.00 1000s.: (60.00...130.00)

2nd speed 1/min: 230

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 20.00...60.00

1606s.: (20.00,...60.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 60.00...130.00 1000s.: (60.00...130.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

mm: -

Operate control lever after each manifold-pressure compensator pressure

mm: 6.6

mm: 5.0...5.4 mm: 1.0...1.4

change.

KF

MS

LDA stroke

Remarks:

* Correction at adjusting nut (46)

Note inst. in remarks column

Test scheet : CLM Edition : 04.06.92

replaces Calibrating oil : ISO-4113

Injection pump : VE4/12F1150R374-1 Type number : 0 460 424 063

Customer Part-No.:

Customer-specific information

Customer : CDC

Engine : 4 BTA 3.9 IND.

Power KW: 112 Speed 1/min: 2300

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

bar: 250.00...253.00 Pressure

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.3

(from BDC): +0.02(0.04)

Start of delivery block Piston stroke mm: 1.55

mm: +-0.02(0.06)

Outlet : D

Injection-pump setting values

Test specifications in parentheses

Timing-device travel

1/min: 850 Speed Charge press. hPa: 1000

Setting value mm: 4.00...4.40

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 850 Speed Charge press hPa: 1000

Setting value bar: 5.60...6.20

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 850 Speed Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 84.50...85.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0 1000s.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500

Del. quantity cm3/

1000s.: 63.50...64.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 375 Speed

Del. quantity cm3/

1000s.: 8.00...14.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

1/min: 1220 Speed Charge press hPa: 1000 Del. quantity cm3/

1000s.: 62.50...68.50

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 60.00...130.00 Shutoff electromagnet Volt: 12 Overflow: 55.60...139.00 1000s.: 60.00 mind Shutoff cm3/10s: (40.60...153.00) electromagnet Volt: 12 quantity Inspection-pump test specifications Delivery-quant. and breakaway char.: Test specifications in parentheses Timing-device characteristic: 1nd speed 1/min: 700* Charge-air pressure-setting point hPa: 350 1/min: 1150 hPa: 1000 mm: 5.20...6.00 mm: (4.90...6.30) 2nd speed Charge press LDA-stroke mm: 6.6 TD travel Shutoff electromagnet Volt: 12 Del. quantity cm3/: 79.50...80.50 1000s.: (76.00...84.00) Shutoff electromagnet Voit: 12 3rd speed 1/min: 850 1/min: 1320 2nd speed Charge press hPa: 1000 Charge press. hPa: 1000 TD travel mm: 4.00...4.40 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) mm: (3.50...4.90) Shutoff electromagnet Volt: 12 4th speed 1/min: 500 Charge press hPa: 1000 3rd speed 1/min: 1260 Charge press. hPa: 1000 mm: 1.80...2.60 TD travel Shutoff mm: (1.50...2.90) electromagnet Volt: 12 Del. quantity cm3/: 15.00...55.00 1000s.: (15.00...55.00) Shutoff electromagnet Volt: 12 charge press. hPa: 1000 Shutoff Supply-pump pressure characteristic: electromagnet Volt: 12
Del. quantity cm3/: 62.50...68.50
1000S.: (59.50...71.50) 1st speed 1/min: 500 Charge press. hPa: 1000 Supply-pump bar: 4.00...4.60 1/min: 1150 pressure 9th speed Shutoff Charge press. hPa: 1000 electromagnet Volt: 12 Shutoff 2nd speed 1/min: 850 electromagnet Volt: 12 Del. quantity cm3/: 76.00...79.00 1000S.: (74.50...80.50) 10th speed 1/min: 1000 Charge press. hPa: 1000 Supply-pump pressure bar: 5.60...6.20 Shutoff Charge press. hPa: 1000 electromagnet Volt: 12 3rd speed 1/min: 1150 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 79.50...82.50 1000S.: (77.50...84.50) Charge press. hPa: 1000 Supply-pump bar: 6.90...7.50 pressure 12th speed 1/min: 850 Shutoff Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 electromagnet Volt: 12 Del. quyntity cm3/: 85.50...86.50 1000s.: (83.00...89.00) Overlow quantity at overflow valve: 1st speed 1/min: 500 18th speed 1/min: 500 Charge press. hPa: -Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 63.50...64.50 electromagnet Volt: 12 Overflow : 41.70...83.40 1000s.: (60.00...68.00) cm3/10s: (26.70...98.40) quantity 2nd speed 1/min: 1150 Mech. shutoff: Charge press. hPa: 1000 Mech. Abstellung:

1/min: 1150 1st speed Charge press. hPa: 1000 Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

Shutoff

electromagnet volt: 12

Electr. shutoff:

1/min: 375 1st speed Charge press. hPa: -

Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

Shutoff

electromagnet voit: -

Idle delivery:

1st speed 1/min: 375

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 8.00...14.00 1000s.: (6.00...16.00)

cm3/: 5.5

Dispersion 1000s.: (7.0)

1/min: 450 2nd speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 0.00...4.00

1000s.: (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 130

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 60.00...130.00

1000s.: (60.00...130.00)

1/min: 230 2nd speed

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 20.00...60.00 1000s.: (20.00...60.00)

1/min: 100 4th speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 60.00...130.00

1000s.: (60.00...130.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0

: 12.0 Rated voltage

Mounting and assembly dimensions:

Designation

mn: -

mm: 5.0...5.4 KF mm: 1.0...1.4 MS

LDA stroke ma: 6.6

Remarks:

: C.D.C # 391 7519

Operate control lever after each manifold-pressure compensator pressure

change.

* Correction at adjusting nut (46)

Note inst. in remarks column

: MWM Test scheet Edition : 16.06.92

Calibrating oil : ISO-4113

Injection pump : VE4/12F1400R477 Type number : 0 460 424 088

Customer-specific information

Customer : MWM

Engine : TD-229 EC4 F-1000 T

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer: 40...48 Electronically : 42...50

Inlet press., bar: 0.35

Calibrating nozzle-holder

assembly : 1 688 901 022

Opening

Pressure bar: 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Injection pump setting values Test specifications in parentheses

Timing device travel

1/min: 1000 Speed Charge press. hPa: 800

Setting value mm: 2.80...3.20

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1000 Charge press hPa: 800

Setting value bar: 6.00...6.60

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1000 Speed Charge press. hPa: 800

Del. quantity cm3/

1000s.: 119.00...120.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0

1000s.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500

Del. quantity cm3/

1000s.: 89.00...93.00

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 350

Del. quantity cm3/

1000s.: 17.00...21.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.5 1000s.: (5.0)

Full-load speed regulation

Speed 1/min: 1500 Charge press hPa: 800

Del. quantity cm3/

1000s.: 95.00...101.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 130.00...180.00 mind 1000s.: 130.0

Shutoff

electromagnet Volt: 12

Inspection pump test specifications Test specifications in parentheses

Timing device characteristic:

1st speed 1/min: 1300 Charge press hPa: 800

TD travel mm: 4.50...5.30

mm: (4.20...5.60)

electromagnet Volt: 12 2nd speed 1/min: 1000 Charge press hPa: 800

TD travel mm: 2.80...3.20

mm: (2.30...3.70)

Shutoff Shutoff electromagnet Volt: 12 3rd speed 1/min: 800 Charge press hPa: 800 TD travel mm: 1.00...1.80 Charge press. hPa: 800 Shutoff mm: (0.70...2.10) electromagnet Volt: 12 Del. quantity cm3/: 121.00...125.00 1000s.: (119.50...126.50) Supply-pump pressure characteristic: 1st speed 1/min: 1300 1/min: 1000 Charge press. hPa: 800 5th speed Charge press. hPa: 800 Shutoff Supply-pump bar: 7.10...7.70 pressure Shutoff electromagnet Volt: 12 2nd speed 1/min: 1000 Charge press. hPa: 800 Supply-pump Charge press. hPa: 800 Shutoff pressure bar: 6.00...6.60 electromagnet Volt: 12 Del. quantity cm3/: 121.00...127.00 1000s.: (119.00...129.00) Shutoff electromagnet Volt: 12 3rd speed 1/min: 800 Charge press. hPa: 800 1/min: 500 7th speed Supply-pump Shutoff electromagnet Volt: 12 Del. quantity cm3/: 89.00...93.00 1000s.: (86.50...95.50) pressure bar: 5.10...5.70 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: Mech. shutoff: 1st speed 1/min: 500 Electr. shutoff: Shutoff electromagnet Volt: 12 : 97.30...139.00 Overflow cm3/10s: (82.30...154.00) 1/min: 1300 quantity 1000s.: (0.00...3.00) 2nd speed Charge press. hPa: 800 Shutoff Idle delivery: electromagnet Volt: 12 1st speed 1/min: 350 Overflow : 111.10...194.40 Shutoff electromagnet Volt: 12
Del. quantity cm3/: 17.00...21.00
1000S.: (15.00...23.00)
Dispersion cm3/: 3.5 quantity cm3/10s: (96.00...209.40) Delivery quant. and breakaway char.: 1000s.: (5.0) 1/min: 380 1nd speed 1/min: 700 2nd speed Charge air pressure setting point hPa: 350 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 8.00...16.00 1000S.: (6.00...18.00) Shutoff 1/min: 470 3rd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...6.00 Charge press. hPa: 800 Shutoff 1000s.: (0.00...6.00) electromagnet Volt: 12
Del. quantity cm3/: 36.00...52.00
1000S.: (32.00...56.00)
3rd speed 1/min: 1500 Automatic starting fuel delivery: 1st speed 1/min: 250 Charge press. hPa: 800

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 50.00...100.00 1000s.: (50.00...100.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 130.00...180.00 1000s.: (130.00...180.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

mn: 3.6...3.8 K

KF mm: K-OT

mm: 42.0...44.0 Ya mm: 33.8...42.2 Yb

Remarks:

Note inst. in remarks column

Test scheet : MAM Edition : 16.06.92 Calibrating oil : ISO-4113

: VE4/12F1500P492 Injection pump : 0 460 424 091 Type number

Customer-specific information

Customer : MWM

Engine : D 229 EC 4

TEST BENCH REQUIREMENTS

Calibrating-oi! return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.35

Calibrating nozzle-holder

assembly : 1 688 901 022

Openina

Fressure bar: 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Injection pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100

Setting value mm: 4.20...4.60

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1100

Setting value bar: 6.20...6.80

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1100 Speed

Del. quantity cm3/

1000s.: 84.50...85.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0 1000s.: (4.5)

Low-idle speed regulation

Speed 1/min: 375

Del. quantity cm3/ 1000s.: 13.00...17.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.5 1000s.: (5.0)

Full-load speed regulation

1/min: 1600

Del. quantity cm3/

1000s.: 54.00...60.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 100.00...140.00

1000s.: 100.0 mind

Shutoff

electromagnet Volt: 12

Inspection pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1500

TD travel mm: 6.30...7.10 mm: (6.00...7.40)

Shutoff : 12 1/min: 1100 2nd speed

TD travel mm: 4.20...4.60 mm: (3.70...5.10)

Shutoff

electromagnet Volt: 12 3rd speed 1/min: 900

TD travel mm: 2.30...3.10

mm: (2.00...3.40)

Supply-pump pressure characteristic:

1st speed 1/min: 1500

Supply-pump

pressure bar: 7.80...8.40

Shutoff

electromagnet Volt: 12 2nd speed 1/min: 1100

Del. quantity cm3/: 13.00...17.00 1000s.: (11.00...19.00) pressure bar: 6.20...6.80 Shutoff Shutoff electromagnet Volt: 12 3rd speed 1/min: 900 electromagnet volt: 12 3rd speed Supply-pump Idle delivery: pressure bar: 5.40...6.00 1/min: 375 1st speed Overlow quantity at overflow valve: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 13.00...17.00 1000s.: (11.00...19.00) Dispersion cm3/: 3.5 1st speed 1/min: 500 Shutoff electromagnet Volt: 12 1000s.: (5.0) 1/min: 300 : 41.70...83.40 Overflow cm3/10s: (26.70...98.40) quantity 2nd speed 1/min: 1500 2nd speed Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 38.50...46.50 electromagnet Volt: 12 : 55.60...139.00 Overflow 1000s.: (36.50...48.50) quantity cm3/10s: (40.60...154.00) 3rd speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Delivery-quant. and breakaway char.: 2nd speed 1/min: 1650 Shutoff Automatic starting fuel delivery: electromagnet Volt: 12 Del. quantity cm3/: 28.00...42.00 1000s.: (25.00...45.00) 1st speed 1/min: 250 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.00...70.00 1/min: 1600 3rd speed Shutoff 1000s.: (30.00...70.00) electromagnet Volt: 12 Del. quantity cm3/: 54.00...60.00 1000s.: (51.00...63.00) 1/min: 100 4th speed 1/min: 1500 4th speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 100.00...140.00 1000s.: (100.00...140.00) Shutoff Shutoff electromagnet: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 34.50...85.50 Cut-in min voltage : 10.0 1000s.: (82.00...88.00) Rated voltage : 12.0 1/min: 900 6th speed Shutoff Mounting and assembly dimensions: electromagnet Volt: 12 Del. quantity cm3/: 88.00...92.00 mm: 42.0...44.0 mm: 36.8...45.2 Ya 1000s.: (86.50...93.50) Yb 1/min: 500 7th speed Shutoff Remarks: electromagnet Volt: 12 Del. quantity cm3/: 66.00...72.00 1000s.: (64.00...74.00) Mech. shutoff: Electr. shutoff: 1st speed 1/min: 375

Supply-pump

F01

Note inst. in remarks column

Test scheet : PER : 01.06.92 Edition replaces : 03.85 Calibrating oil : ISO-4113

Injection pump : VE6/12F1300L21-2 : 0 460 426 013 Type number

Customer Part-No.:

Customer-specific information Customer : PERKINS

: T6.354.4 Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 020

Opening

Pressure bar: 172.00...175.00

Perforated-plate

diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery

Prestroke mm: 0.45

(from BDC): +-0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing-device travel

beea2 1/min: 600 Charge press. hPa: 1000

Setting value mm: 2.50...2.90 Supply-pump pressure

1/min: 600 Speed Charge press hPa: 1000

Setting value bar: 3.80...4.40

Full-load del. with charge press.:

Speed 1/min: 1000 Charge press. hPa: 1000

1000s.: (5.0)

Full-load del. w/out charge press.:

1/min: 500

Del. quantity cm3/

1000s.: 68.50...72.50

Low-idle speed regulation

Speed 1/min: 270

Del. quantity cm3/

1000s.: 8.00...12.00

Del. quantity cm3/: 5.0

1000s.: (5.0)

Full-load speed regulation

Speed 1/min: 1480 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 42.00...50.00

Start:

1/min: 100 Speed Del. quantity cm3/: -mind 1000s.: 78.00

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

3rd speed 1/min: 600 hPa: 1000 Charge press

TD travel mm: 2.50...2.90 mm: (2.00...3.40)

4th speed 1/min: 400 Charge press hPa: 1000

TD travel mm: 0.70...1.50

mm: (0.40...1.80)

1/min: 800 5th speed Charge press. hPa: 1000

mm: 3.80...4.60 TD travel mm: (3.50...4.90)

St speed 1/min: 1300 1000s.: (0.003.00) 100	Supply-pump pressure characteristic:	1st speed
Supply-mump Description		1000s.: (0.003.00)
Supply-mump Description	Charge press. hPa: 1000	•
pressure bar: 6.006.60 2nd speed 1/min: 600 Charge press. hPa: 1000 Supply-pump bar: 3.804.40 3nd speed 1/min: 400 Supply-pump bar: 3.804.40 3nd speed 1/min: 400 Supply-pump bar: 3.804.40 3nd speed 1/min: 400 Supply-pump bar: 3.003.60 Overflow quantity at overflow valve: 1st speed 1/min: 500 Overflow (41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1300 Charge press. hPa: 1000 Overflow (3.41.7083.40 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 1nd speed 1/min: 700 Charge-air pressure-setting point Louarity cm3/: 8.00 Delivery-quant. end breakaway char.: 1nd speed 1/min: 700 Charge-air pressure-setting point Louarity cm3/: 8.5088.50 1000s: (82.8090.20) 2nd speed 1/min: 1600 Charge press. hPa: 1000 Del. quantity cm3/: 42.003.00 Sth speed 1/min: 1300 Charge press. hPa: 1000 Del. quantity cm3/: 42.0050.00 2vd speed 1/min: 1300 Charge press. hPa: 1000 Del. quantity cm3/: 42.0050.00 2vd speed 1/min: 1300 Charge press. hPa: 1000 Del. quantity cm3/: 8.5088.50 1000s: (41.0051.00) 9th speed 1/min: 1300 Charge press. hPa: 1000 Del. quantity cm3/: 78.5083.50 1000s: (84.0090.00) 1000s: (41.7098.40) 2nd speed 1/min: 1000 Del. quantity cm3/: 78.5088.50 1000s: (41.0051.00) 9th speed 1/min: 1300 Charge press. hPa: 1000 Del. quantity cm3/: 8.5082.50 1000s: (84.0090.00) 1000s: (41.7098.40) 2nd speed 1/min: 1000 Del. quantity cm3/: 78.5082.50 1000s: (64.0090.00) 1000s: (62.8090.20) 1000s: (62.8090.20) 1000s: (63.8090.20) 1000s: (63		Idle delivery:
2nd speed 1/min: 600 Charge press. hPa: 1000 Supply-pump pressure bar: 3.804.40 3nd speed 1/min: 400 Charge press. hPa: 1000 Supply-pump pressure bar: 3.003.60 Overlow quantity at overflow valve: 1st speed 1/min: 500 Overflow quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1300 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1300 Overflow : 55.60139.00 Overflow cm3/10s: (40.60154.00) Delivery-quant. and breakaway char: Ind speed 1/min: 700 Charge-air pressure-setting point hPa: 320 LDA-stroke mm: 4.5 Del. quantity cm3/: 84.5088.50 1000s: (82.8090.20) 2nd speed 1/min: 1600 Charge press. hPa: 1000 Del. quantity cm3/: 85.503.00 Sth speed 1/min: 1480 Charge press. hPa: 1000 Del. quantity cm3/: 85.5088.50 1000s: (41.0051.00) 2th speed 1/min: 1300 Charge press. hPa: 1000 Del. quantity cm3/: 85.5088.50 1000s: (41.0051.00) 2th speed 1/min: 1300 Charge press. hPa: 1000 Del. quantity cm3/: 85.5088.50 1000s: (80.0090.00) 2th speed 1/min: 1300 Charge press. hPa: 1000 Del. quantity cm3/: 85.5082.50 1000s: (30.0090.00) 12th speed 1/min: 1300 Del. quantity cm3/: 85.5082.50 1000s: (67.5073.50) Mech. shutoff:	pressure bar: 6.006.60	
Charge press. hPa: 1000 Supply-pump pressure bar: 3.804.40 3rd speed 1/min: 400 Supply-pump pressure bar: 3.803.60 Overlow quantity at overflow valve: 1st speed 1/min: 500 Overflow quantity at overflow valve: 1st speed 1/min: 500 Overflow cm3/10s: (26.7098.40) 2nd speed 1/min: 1300 Charge press. hPa: 1000 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char: 1nd speed 1/min: 700 Charge air pressure—setting point hPa: 320 LDA-stroke mm: 4.5 Del. quantity cm3/: 84.5088.50 2nd speed 1/min: 1000 Charge press. hPa: 1000 Charge press. hPa: 1000 Charge press. hPa: 1000 Charge press. hPa: 1000 Charge press. hPa: 1000 Del. quantity cm3/: 42.0050.00 1000s: (60.003.00) 7th speed 1/min: 1300 Charge press. hPa: 1000 Del. quantity cm3/: 85.5088.50 1000s: (64.0051.00) 7th speed 1/min: 1000 Charge press. hPa: 1000 Del. quantity cm3/: 85.5088.50 1000s: (84.0090.00) 12th speed 1/min: 1000 Charge press. hPa: 1000 Del. quantity cm3/: 78.5082.50 1000s: (64.0090.00) 12th speed 1/min: 1000 Charge press hPa: 1000 Del. quantity cm3/: 78.5082.50 1000s: (64.0090.00) 12th speed 1/min: 1000 Del. quantity cm3/: 78.5082.50 1000s: (67.5073.50) Mech. shutoff:	2nd speed 1/min: 600	1st speed 1/min: 270
1000s: (5,0015,00)		Del. quantity cm3/: 8.0012.00
pressure Size Jrainis 400 bar: 3.804.40 3rd speed 1/min: 400 1/000S.: - Charge press. hPa: 1000 1000S.: - Supply-pump pressure bar: 3.003.60 Overlow quantity at overflow valve: 1000S.: 0.001.00 Overflow quantity cm3/10s: (26.7098.40) 27.3 speed 1/min: 320 Overflow cm3/10s: (26.7098.40) 27.4 speed 1/min: 1300 Charge press. hPa: 1000 40.60154.00 Delivery-quant. and breakaway char.: 1st speed 1/min: 230 Delivery-quant. and breakaway char.: 2nd speed 1/min: 230 Del. quantity cm3/: 84.5088.50 2nd speed 1/min: 100 LDA-stroke mi: 4.5 4.5 Del. quantity cm3/: 84.5088.50 40.003.00 1000s: (32.8090.20) 44th speed 1/min: 100 2nd speed 1/min: 1600 44th speed 1/min: 100 2nd speed 1/min: 1600 44th speed 1/min: 230 2nd speed 1/min: 1600 50 30 30 3nd speed 1/min: 1480 50 30 30<		
3rd speed 1/min: 400 Supply-pump pressure bar: 3.003.60 Overlow quantity at overflow valve: 1st speed 1/min: 500 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2rd speed 1/min: 300 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 1nd speed 1/min: 700 Charge-air pressure-setting point hPa: 320 LDA-stroke mm: 4.5 Del. quantity cm3/: 84.5088.50 1000s: (82.8090.20) 2rd speed 1/min: 1600 Charge press. hPa: 1000 Del. quantity cm3/: 38.5030.00 Sth speed 1/min: 1480 Charge press. hPa: 1000 Del. quantity cm3/: 42.0050.00 1000s: (44.0051.00) 2rd speed 1/min: 1300 Charge press. hPa: 1000 Del. quantity cm3/: 25.088.50 1000s: (82.8090.00) 1000s: (44.0051.00) 2rd speed 1/min: 1480 Charge press. hPa: 1000 Del. quantity cm3/: 85.5088.50 1000s: (44.0051.00) 2rd speed 1/min: 1300 Charge press. hPa: 1000 Del. quantity cm3/: 92.5093.50 1000s: (44.0051.00) 2rd speed 1/min: 1300 Charge press. hPa: 1000 Del. quantity cm3/: 92.5093.50 1000s: (44.0051.00) 2rd speed 1/min: 1300 Charge press. hPa: 1000 Del. quantity cm3/: 92.5093.50 1000s: (44.0051.00) 2rd speed 1/min: 1300 Charge press. hPa: 1000 Del. quantity cm3/: 78.5082.50 1000s: (44.0051.00) 2rd speed 1/min: 1300 Charge press. hPa: 1000 Del. quantity cm3/: 85.5082.50 1000s: (44.0051.00) 2rd speed 1/min: 1300 Del. quantity cm3/: 78.5082.50 1000s: (44.0051.00) 2rd speed 1/min: 1300 Del. quantity cm3/: 92.5093.50 1000s: (44.0051.00) 2rd speed 1/min: 1300 Del. quantity cm3/: 85.5082.50 1000s: (44.0051.00) 2rd speed 1/min: 1300 Del. quantity cm3/: 85.5082.50 1000s: (44.0051.00) 2rd speed 1/min: 1300 Del. quantity cm3/: 85.5082.50 1000s: (44.0051.00) 2rd speed 1/min: 1300 Del. quantity cm3/: 84.5082.50 1000s: (44.0051.00) 2rd speed 1/min: 1300 Del. quantity cm3/: 84.5082.50 1000s: (44.0051.00) 2rd speed 1/min: 1300 Del. quantity cm3/: 84.5082.50 1000s: (44.0051.00) 2rd speed 1/min: 1300 Del. quantity cm3/: 84.50	pressure bar: 3.804.40	
Charge press. hPa: 1000 Supply-pump pressure bar: 3.003.60 Overlow quantity at overflow valve: 1st speed 1/min: 500 Overflow cm3/10s: (26.7098.40) 2nd speed 1/min: 1300 Charge press. hPa: 1000 Overflow (3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 1nd speed 1/min: 700 Charge-air pressure-setting point hPa: 320 LDA-stroke mm: 4.5 Del. quantity cm3/: 84.5088.50 Pel. quantity cm3/: 84.5088.50 Thomas per she: 1000 Del. quantity cm3/: 0.003.00 Sth speed 1/min: 1480 Charge press. hPa: 1000 Del. quantity cm3/: 42.0050.00 1000s.: (44.0051.00) Sth speed 1/min: 1000 Charge press. hPa: 1000 Del. quantity cm3/: 92.5088.50 1000s.: (44.0051.00) Sth speed 1/min: 1000 Charge press. hPa: 1000 Del. quantity cm3/: 92.5093.50 1000s.: (84.0090.00) 12th speed 1/min: 1000 Del. quantity cm3/: 92.5093.50 1000s.: (90.0096.00) 16th speed 1/min: 500 Del. quantity cm3/: 68.502.50 1000s.: (77.5083.50) 18th speed 1/min: 500 Del. quantity cm3/: 68.5072.50 1000s.: (77.5083.50) 18th speed 1/min: 500 Del. quantity cm3/: 68.5072.50 Index per short speed 1/min: 500 Del. quantity cm3/: 68.5072.50 Index per short speed 1/min: 500 Del. quantity cm3/: 68.5072.50 Index per short speed 1/min: 500 Del. quantity cm3/: 68.5072.50 Index per short speed 1/min: 1000 Del. quantity cm3/: 68.5072.50 Index per short speed 1/min: 1000 Del. quantity cm3/: 68.5072.50 Index per short speed 1/min: 1000 Del. quantity cm3/: 68.5072.50 Index per short speed 1/min: 1000 Del. quantity cm3/: 68.5072.50 Index per short speed 1/min: 1000 Del. quantity cm3/: 68.5072.50 Index per short speed 1/min: 1000 Del. quantity cm3/: 68.5072.50 Index per short speed 1/min: 1000 Del. quantity cm3/: 68.5072.50 Index per short speed 1/min: 1000 Del. quantity cm3/: 68.5072.50 Index per short speed 1/min: 1000 Del. quantity cm3/: 68.5072.50 Index per short speed 1/min: 1000 Del. quantity cm3/: 0.0090.00 Index per short speed 1/min: 1000 Del. quantity cm3/: 0.0090.00 Index per sho	3rd speed 1/min: 400	
Supply-pump pressure bar: 3.003.60 Overlow quantity at overflow valve: 1st speed 1/min: 500 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1300 Charge press. hPa: 1000 Delivery-quant. and breakaway char.: 1nd speed 1/min: 700 Charge-air pressure-setting point hPa: 320 LDA-stroke mm: 4.5 Del. quantity cm3/: 84.5088.50 1000s:: (82.8090.20) 2nd speed 1/min: 1600 Charge press. hPa: 1000 Del. quantity cm3/: 84.5088.50 1000s:: (84.003.00) Sth speed 1/min: 1600 Charge press. hPa: 1000 Del. quantity cm3/: 85.5080.50 1000s: (41.0051.00) 9th speed 1/min: 1300 Charge press. hPa: 1000 Del. quantity cm3/: 85.5088.50 1000s: (44.0051.00) 9th speed 1/min: 1000 Del. quantity cm3/: 92.5093.50 1000s: (84.0090.00) 12th speed 1/min: 1000 Del. quantity cm3/: 92.5093.50 1000s: (67.5073.50) Mech. shutoff:		
Description Description		
Overlow quantity at overflow valve: 1st speed 1/min: 500 Overflow : 41.7083.40 Quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1300 Overflow : 55.60139.00 Quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 1nd speed 1/min: 700 Charge-air pressure-setting point hPa: 320 LDA-stroke mm: 4.5 Del. quantity cm3/: 84.5088.50 1000S.: (82.8090.20) 2nd speed 1/min: 1600 Charge press. hPa: 1000 Del. quantity cm3/: 0.003,00 Del. quantity cm3/: 42.003,00 Sth speed 1/min: 1300 Charge press. hPa: 1000 Del. quantity cm3/: 20.003,00 Sth speed 1/min: 1300 Del. quantity cm3/: 42.0050.00 2nd speed 1/min: 1300 Charge press. hPa: 1000 Del. quantity cm3/: 85.5088.50 1000S.: (41.0051.00) 9th speed 1/min: 1300 Charge press. hPa: 1000 Del. quantity cm3/: 85.5088.50 1000S.: (44.0090.00) 16th speed 1/min: 1000 Del. quantity cm3/: 92.5093.50 1000S.: (90.0096.00) 16th speed 1/min: 1000 Del. quantity cm3/: 68.5072.50 1000S.: (67.5073.50) Mech. shutoff:	pressure har 3 M 3 M	10005 (0.00 1.00)
Overlow quantity at overflow valve: 1st speed 1/min: 500 Overflow cm3/10s: (26.7098.40) 2nd speed 1/min: 1300 Charge press. hPa: 1000 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Pelivery-quant. and breakaway char.: 1nd speed 1/min: 700 Charge-air pressure-setting point hPa: 320 LDA-stroke mm: 4.5 Pel. quantity cm3/: 84.5088.50 1000s.: (82.8090.20) 2nd speed 1/min: 1600 Charge press. hPa: 1000 Del. quantity cm3/: 0.003.00 1000s.: (62.8090.20) 2th speed 1/min: 1480 Charge press. hPa: 1000 Del. quantity cm3/: 42.0050.00 1000s.: (41.0051.00) 9th speed 1/min: 1300 Charge press. hPa: 1000 Del. quantity cm3/: 25.5088.50 1000s.: (44.0090.00) 12th speed 1/min: 1300 Charge press. hPa: 1000 Del. quantity cm3/: 25.5088.50 1000s.: (44.0090.00) 12th speed 1/min: 1000 Del. quantity cm3/: 78.5088.50 1000s.: (59.0096.00) 16th speed 1/min: 1000 Del. quantity cm3/: 78.5082.50 1000s.: (67.5073.50) Mech. shutoff:	pressure bar 5:00:1:5:00	7 7rd speed 1/min: 320
1st speed 1/min: 500 Overflow	Overlow resptity at overflow value.	Dol guartity on 7/1 1 00
1st speed 1/min: 500 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1300 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quart. and breakaway char.: 1nd speed 1/min: 700 Charge-air pressure-setting point hPa: 320 LDA-stroke mm: 4.5 Del. quantity cm3/: 84.5088.50 1000s.: (82.8090.20) 2nd speed 1/min: 1600 Charge press. hPa: 1000 Del. quantity cm3/: 0.003.00 2nd speed 1/min: 1600 St speed 1/min: 1600 Charge press. hPa: 1000 Del. quantity cm3/: 20.050.00 1000s.: (41.0051.00) 9th speed 1/min: 1300 Charge press. hPa: 1000 Del. quantity cm3/: 25088.50 1000s.: (84.0090.00) 12th speed 1/min: 1300 Charge press. hPa: 1000 Del. quantity cm3/: 92.5093.50 1000s.: (90.0096.00) 16th speed 1/min: 1000 Del. quantity cm3/: 78.5082.50 1000s.: (77.5083.50) 18th speed 1/min: 1000 Del. quantity cm3/: 92.5093.50 1000s.: (67.5073.50) Mech. shutoff:	over contiquentity at over itom vatve.	1000s
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Mech. shutoff:		
	1000s.: (67.5073.50)	
		+
Mech. Abstellung:		
	Mech. Abstellung:	+

Note inst. in remarks column

Test scheet : MAN : 03.06.92 Edition : 02.84 replaces Calibrating oil : ISO4113

Injection pump : VE6/12F1400R132 : 0 460 426 032 Type number

Customer-specific information

: MAN Customer

: D 0226 MKF Engine LKW

TEST BENCH REQUIREMENTS

Calibrating oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.35

Calibrating nozzle-holder

assembly : 1 688 901 000

Opening

bar: 147...150 Pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.2

(from BDC): +-0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing device travel

1/min: 800 Speed Charge press. hPa: 1000

mm: 3.10...3.50 Setting value

Supply-pump pressure

1/min: 800 Speed hPa: 1000 Charge press

Setting value bar: 5.10...5.70

full-load del. with charge press.:

Speed 1/min: 1000 Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 117.50...118.50

cm3/: 4.0Dispersion 1000s.: (4.5)

Full-load del. w/out charge press.:

1/min: 630 Speed

Del. quantity cm3/ 1000s.: 73.50...74.50

Low-idle speed regulation

Speed 1/min: 300

Del. quantity cm3/

1000s.: 10.00...16.00 Del. quantity cm3/: 3.5

1000s.: (4.0)

Full-load speed regulation

Speed 1/min: 1450 hPa: 1000 Charge press

Del. quantity cm3/

1000s.: 97.00...103.00

Start:

1/min: 100 Speed

Charge press hPa: Del. quantity cm3/: 70.00...130.00 mind

1000s.: 70.00

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 800 Speed

Inj.-qty. cm3/

difference 1000s.: 2.00...8.00

SP press.-dif.measurement pompa di mandata (FP) 1.Speed 1/min: 800

Supply pump

pressure

difference bar: -0.60...-0.20

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500 hPa: 1000 Charge press

TD travel mm: 1.50...2.30

mm: (1.20...2.60)

2nd speed 1/min: 800

	3.103.50	Del. quantity cm3/: 110.50115.50 1000S.: (109.00117.00)
	(2.604.00)	7th speed 1/min: 1000
3rd speed 1/min:		Charge press. hPa: 1000
	1000 + 4.205.00 +	Del. quantity cm3/: 117.50118.50
	(3.905.30)	1000s.: (115.50120.50) 8th speed 1/min: 800
IIPIIa	I	Charge press. hPa: 1000
Supply-pump pressure	e characteristic:	Del. quantity cm3/: 118.50123.50
And many and Olavina	500	1000\$.: (117.00125.00)
1st speed 1/min: Charge press. hPa:		9th speed 1/min: 630
Supply-pump	1000	Charge press. hPa: 1000 Del. quantity cm3/: 117.50122.50
pressure bar:	3.804.40 I	1000s.: (116.00124.00)
2nd speed 1/min:		10th speed 1/min: 630
Charge press. hPa:		Del. quantity cm3/: 73.5074.50
Supply-pump	+	1000s.: (71.5076.50)
pressure bar:	5.105.70	
3rd speed 1/min:	1100	Mech. shutoff:
Charge press. hPa:	1000	Mech. Abstellung:
Supply-pump	+	
pressure bar:	6.106.70	1st speed 1/min: 1400
0	<u> </u>	Charge press. hPa: 1000
Overlow quantity at	overflow valve:	Del. quantity cm3/: 0.003.00
1st smard 1/-i	470	1000s.: (0.003.00)
1st speed 1/min: Overflow:	41.7083.40	Tello del france
quantity cm3/10s:		Idle delivery:
2nd speed 1/min:		1st speed 1/min: 300
Charge press. hPa:		Del. quantity cm3/: 10.0016.00
Overflow :	55.50138.90	10008.: (8.0018.00)
quantity cm3/10s:		Dispersion cm3/: 3.5
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	+	1000s.: (4.0)
Delivery-quant. and	breakaway char.:	2nd speed 1/min: 350
	+	Del. quantity cm3/: 0.005.00
	+	1000\$.: (0.005.00)
1nd speed 1/min:		3rd speed 1/min: 400
Charge air pressure		Del. quantity cm3/: 0.004.00
point hPa: LDA-stroke mm:		1000s.: (0.004.00)
Del. quantity cm3/:	7.5	land-dependent start of delivery
	(95.50100.50)	Load-dependent start of delivery: Injqty.dif.measurement:
2nd speed 1/min:		ing. qcy.drr.measurement.
Charge press. hPa:		1st speed 1/min: 800
Del. quantity cm3/:		Injqty. cm3/ : -33.031.0
1000s.:	(0.003.00)	difference 1000s.: (-33.031.0)
3rd speed 1/min:		2nd speed 1/min: 800
Charge press. hPa:	1000	Injqty. cm3/: 2.008.00
Del. quantity cm3/:	0.0015.00	difference 1000s.: (2.008.00)
10005.:	(0.0015.00)	
4th speed 1/min:		SP pressdif.measurement:
Charge press. hPa: Del. quantity cm3/:		pompa di mandata (FP): 1st speed = 1/min: 800
	(15.0045.00)	Supply pump-
5th speed 1/min:		pressure : -0.300.10
Charge press. hPa:		difference bar: (-0.300.10)
Del. quantity cm3/:	97.00103.00	2nd speed 1/min: 800
1000s.:	(95.50104.50)	Supply pump-
6th speed 1/min:		pressure : -0.600.20
Charge oress hPat	1000 ±	difference har (-0 60 -0 20)

Automatic starting fuel delivery:

2nd speed 1/min: 430
Del. quantity cm3/: 70.00...90.00
1000s.: (70.00...90.00)

Mounting and assembly dimensions:

Designation

K mm: -

mm: 5.7...6.0 KF MS mm: 1.0..1.25 SVS max. mm: 2.8

mm: 25.0...27.0 mm: 12.9...16.2 mm: 37.4...40.4 mm: 46.2...51.6 XK XL Ya Yb

Remarks:

Note inst. in remarks column

Test scheet : CUM

Edition : 04.06.92

replaces

Calibrating oil : ISO-4113

Injection pump : VE6/12F1050R159-4 : 0 460 426 044 Type number

Customer Part-No.: 390 7665

Customer-specific information

Customer : CDC

: 6BT-5.9 IND. Engine

Power KW: 142 1/min: 2100 Speed

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 016 assembly

Openina |

bar: 207.00...210.00 Pressure

Perforated plate

mm: 0.5 diameter

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00

x Length

mm: 840

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke mm: 1.5

mm: $\leftarrow 0.02(0.06)$

: D Outlet

Injection-pump setting values Test specifications in parentheses Timing-device travel

1/min: 750 Speed

Setting value mm: 3.60...4.00

Shutoff

electromagnet Volt: 24

Supply-pump pressure

1/min: 750 Speed

Setting value bar: 4.20...4.80

Shutoff

electromagnet Volt: 24

Full-load del. w/out charge press.:

1/min: 900

Del. quantity cm3/

1**000**s.: 83.00...84.00

Shutoff

electromagnet Volt: 24 cm3/: 4.0 Dispersion

1000s.: (4.5)

Low-idle speed regulation

Speed 1/min: 375

Del. quantity cm3/

1000s.: 22.00...28.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

1/min: 1125 Speed

Del. quantity cm3/

1000s.: 37.00...43.00

Shutoff

electromagnet Volt: 24

Start:

1/min: 100 Speed

Del. quantity cm3/: 100.00...140.00

1000s.: 100.0 mind

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 900

mm: 4.60...5.40 TD travel

mm: (4.30...5.70)

F07

Del. quantity cm3/: 78.50...81.50 1000S.: (77.00...83.00) Shutoff electromagnet Volt: 24 3rd speed 1/min: 750 Shutoff mm: 3.60...4.00 TD travel electromagnet Volt: 24 mm: (3.10...4.50) Shutoff Shutoff electromagnet Volt: 24 electromagnet Volt: 24 4th speed 1/min: 500 12th speed 1/min: 900 Shutoff TD travel mm: 1.80...2.60 electromagnet Volt: 24 Del. quyntity cm3/: 83.00...84.00 1000s.: (80.50...86.50) 20th speed 1/min: 500 mm: (1.50...2.90) Shutoff electromagnet Volt: 24 Shutoff Supply-pump pressure characteristic: electromagnet Volt: 24 Del. quantity cm3/: 82.00...90.00 1st speed 1/min: 500 1000s.: (80.00...92.00) Supply-pump pressure bar: 3.00...3.60 Mech. shutoff: Shutoff Mech. Abstellung: electromagnet Volt: 24 2nd speed 1/min: 750 Supply-pump bar: 4.20...4.80 pressure 1000s.: (0.00...3.00) Shutoff Shutoff electromagnet Volt: 24 electromagnet volt: 24 1/min: 900 3rd speed Supply-pump Electr. shutoff: bar: 4.70...5.30 pressure Shutoff 1/min: 375 1st speed Del. quantity cm3/: 0.00...3.00 electromagnet Volt: 24 1000s.: (0.00...3.00) Overlow quantity at overflow valve: Shutoff electromagnet volt: -1st speed 1/min: 500 Shutoff Idle delivery: electromagnet Volt: 24 Overflow : 41.70...83.40 1/min: 375 1st speed quantity cm3/10s: (26.70...98.40) Shutoff 2nd speed 1/min: 1050 electromagnet Volt: 24 Shutoff Del. quantity cm3/: 22.00...28.00 1000s.: (20.00...30.00) electromagnet Volt: 24 cm3/: 5.5 1000s.: (7.0) : 55.60...139.00 Overflow Dispersion cm3/10s: (40.60...153.00) quantity Shutoff Delivery quant. and breakaway char.: electromagnet Volt: 24 Shutoff electromagnet Volt: 24 1/min: 1175 1/min: 450 2nd speed 4th speed Shutoff Shutoff electromagnet Volt: 24 electromagnet Volt: 24 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 1/min: 1125 5th speed Shutoff Automatic starting fuel delivery: electromagnet Volt: 24
Del. quantity cm3/: 37.00...43.00
1000s.: (34.00...46.00)
9th speed 1/min: 1050 1st speed 1/min: 130 Shutoff electromagnet Volt: 24
Del. quantity cm3/: 100.00...150.00 Shutoff electromagnet Volt: 24 1000s.: (100.00...150.00) 2nd speed 1/min: 200

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 45.00...85.00 1000s.: (45.00...85.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 100.00...140.00 1000s.: (100.00...140.00)

Shutoff electromagnet:

Cut-in

min voltage : 20.0 Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K mm: -

mm: 5.0...5.4 mm: 1.3...1.7 KF MS

Remarks:

F09

Note inst. in remarks column

Test scheet : CUM Edition : 03.06.92

replaces

Calibrating oil : ISO-4113

Injection pump : VE6/12F125CR232-1

: 0 460 426 078 Type number Customer Part-No.: 391 0679

Customer-specific information

Customer : CDC

Engine : 6 BT-5.9

Power KW: 1250

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

Pressure bar: 250.00...253.00

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery

Prestroke mm: 0.3

(from BDC): +0.02(0.04)

Start of delivery block Piston stroke mm: 1.1

mm: +0.02(0.06)

Outlet

Injection pump setting values Test specifications in parentheses Timing-device travel

Speed 1/min: 900 Charge press. hPa: 1000

Setting value mm: 3.90...4.30

Shutoff

electromagnet Volt: 24

Supply-pump pressure

1/min: 700 Speed Charge press hPa: 1000

Setting value bar: 2.80...3.40

electromagnet Volt: 24

Full-load del. with charge press.:

1/min: 900 Speed Charge press. hPa: 1000 Del. quantity cm3/ 1000S.: 66.00...67.00

Shutoff

electromagnet Volt: 24 cm3/: 4.0 Dispersion 1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500

Del. quantity cm3/ 1000s.: 30.50...31.50

Shutoff

electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 360

Del. quantity cm3/

1000s.: 8.00...14.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

1/min: 1330 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 50.50...56.50

Shutoff

electromagnet Volt: 24

Start:

1/min: 100 Speed

Del. quantity cm3/: 45.00...145.00

1000s.: 45.00

Shutoff electromagnet Volt: 24	İ	Overflow : 55.60139.00 quantity cm3/10s: (40.60153.00
Inspection-pump test specifications Test specifications in parentheses	<u> </u>	Delivery-quant. and breakaway char.
Timing-device characteristic:	+	1nd speed 1/min: 700*
2nd speed 1/min: 1100	Ī	Charge-air pressure-setting point hPa: 500
Charge press hPa: 1000	1	LDA-stroke mm: 7.0
TD travel mm: 5.306.10	1	Shutoff
mm: (5.006.40)	1	electromagnet Volt: 24
Shutoff	+	Del. quantity cm3/: 60.0061.00
electromagnet Volt: 24	+	10008.: (56.5064.50)
3rd speed 1/min: 900	1	2nd speed 1/min: 1550
Charge press hPa: 1000	+	Charge press. hPa: 1000
TD travel mm: 3.904.30	+	Shutoff
mn: (3.404.80)	+	electromagnet Volt: 24
Shutoff	1	Del. quantity cm3/: 0.003.00
electromagnet Volt: 24	4	1000s.: (0.003.00)
4th speed 1/min: 700	+	4th speed 1/min: 1430
Charge press nPa: 1000	+	Charge press. hPa: 1000
TD travel mm: 1.602.40	+	Shutoff
mm: (1.302.70)	+	electromagnet Volt: 24
Shutoff	+	Del. quantity cm3/: 15.0055.00
electromagnet Volt: 24	+	1000s.: (15.0055.00)
	+	5th speed 1/min: 1330
Supply-pump pressure characteristic:	+	Charge press. hPa: 1000
	+	Shutoff
2nd speed 1/min: 700	+	electromagnet Volt: 24
Charge press. hPa: 1000	+	Del. quantity cm3/: 50.5056.50
Supply-pump	+	1000s.: (47.5059.50)
pressure bar: 2.803.40	+	9th speed 1/min: 1250
Shutoff	+	Charge press. hPa: 1000
electromagnet Volt: 24	+	Shutoff
3rd speed 1/min: 900	+	electromagnet Volt: 24
Charge press. hPa: 1000	+	Del. quantity cm3/: 63.5066.50
Supply-pump	†	1000\$.: (62.0068.00)
pressure bar: 3.704.30 Shutoff	T	11th speed 1/min: 1100
electromagnet Volt: 24	Τ	Charge press. hPa: 1000 Shutoff
4th speed 1/min: 1100	Ι	electromagnet Volt: 24
Charge press. hPa: 1000	Ι	Del. quantity cm3/: 64.0067.00
Supply-pump	1	1000s.: (61.5069.50)
pressure bar: 4.505.10	1	12th speed 1/min: 900
Shutoff	1	Charge press. hPa: 1000
electromagnet Volt: 24	1	Shutoff
	+	electromagnet Volt: 24
Overlow quantity at overflow valve:	+	Del. quyntity cm3/: 66.0067.00
	+	1000s.: (63.5069.50)
1st speed 1/min: 500	+	18th speed 1/min: 500
Charge press. hPa: -	+	Charge press. hPa: -
Shutoff	+	Shutoff
electromagnet Volt: 24	†	electromagnet Volt: 24
Overflow : 41.7083.40	+	Del. quantity cm3/: 30.5031.50
quantity cm3/10s: (26.7098.40)	†	10008.: (27.0035.00)
2nd speed 1/min: 1250	†	Marite where of
Charge press. hPa: 1000	†	Mech. shutoff:
Shutoff	†	Mech. Abstellung:
electromagnet Volt: 24	T	

1st speed 1/min: 1250 Charge press. hPa: 1000 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet volt: 24 Electr. shutoff: 1/min: 360 1st speed Charge press. hPa: -Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet volt: -Idle delivery: 1st speed 1/min: 360 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 8.00...14.00 1000s.: (6.00...16.00) cm3/: 5.5 Dispersion 1000s.: (7.0) 1/min: 450 2nd speed Shutofr electromagnet Volt: 24 Del. quantity cm3/: 0.00...4.00 1000s.: (0.00...4.00) Automatic starting fuel delivery: 1st speed 1/min: 300 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 55.00...115.00 1600s.: (55.00...115.00) 1/min: 480 2nd speed Shutoff electromagnet Volt: 24 Dei. quantity cm3/: 55.00...95.00 1000s.: (55.00...95.00) 1/min: 100 4th speed Shutoff electromagnet Volt: 24 Del. quantity cm3/: 45.00...145.00 1000s.: (45.00...145.00) Shutoff electromagnet: Cut-in min voltage : 20.0 Rated voltage : 24.0

Mounting and assembly dimensions:

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut (46)

F12

Designation

Note inst. in remarks column

Test scheet : PER

Edition : 11.06.92 replaces : 06.11.89 Calibrating oil : ISO-4113

: VE6/12F1300R240 Injection pump Type number : 0 460 426 084

Customer Part-No. :

Customer-specific information Customer : PERKINS

: T6 60 cc Truck Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer: 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 020 assembly

Openina

bar: 172.00...175.00 Pressure

Perforated plate

diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Lenath mm: 840

Start of delivery

Prestroke mn: 0.25

(from BDC): 0.02(0.04)

Start of delivery block Piston stroke mm: 1.0

mm: +-0.02

: A Outlet

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1100 Speed Charge press. hPa: 1000

Setting value mm: 1.30...1.70

Shutoff

electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1100 Charge press hPa: 1000 Setting value bar: 6.50...7.10

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

1/min: 700 Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 97.50...98.50

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 5.0

1000s.: (5.0)

Full-load del. w/out charge press.:

1/min: 700 Speed

Del. quantity cm3/ 1000s.: 85.00...86.00

Shutoff

electromagnet Volt: 24

Low-idle speed regulation

1/min: 300

Del. quantity cm3/

1000s.: 16.50...20.50

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 5.0 1000s.: (5.0)

Full-load speed regulation

Speed 1/min: 1450 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 47.00...53.00

Shutoff

electromagnet Volt: 24

Start:

Speed 1/min: 100 Del. quantity cm3/: 115.00...155.00

1000s.: 115.0 mind

Shutoff

electromagnet Volt: 24

F13

Inspection-pump test specifications Delivery-quant. and breakaway char.: Test specifications in parentheses Timing device characteristic: 1/min: 700 1nd speed Charge-air pressure-setting 1/min: 1300 hPa: 1000 2nd speed hPa: 400 point Charge press LDA-stroke mm: 6.3 mm: 2.00...2.80 TD travel Shutoff electromagnet Volt: 24
Del. quantity cm3/: 94.00...95.00
1000s.: (91.00...98.00)
2nd speed 1/min: 1520
Charge press. hPa: 1000 mm: (1.70...3.10) Shutoff Shutott
electromagnet Volt: 24
3rd speed 1/min: 1100
Charge press hPa: 1000
TD travel mm: 1.30...1.70 Shutoff electromagnet Volt: 24
Del. quantity cm3/: 13.50...21.50
1000s.: (10.50...24.50) mm: (0.80...2.20) Shutoff electromagnet Volt: 24 1/min: 1000 4th speed 1/min: 1580 3rd speed Charge press. hPa: 1000 Shutoff Charge press hPa: 1000 mm: 0.40...1.20 TD travel electromagnet Volt: 24 Del. quantity cm3/: 0.00...7.00 mm: (0.10...1.50) Shutoff electromagnet Volt: 24 1000s.: (0.00...7.00) 1/min: 1450 5th speed Charge press. hPa: 1000 Supply-pump pressure characteristic: Shutoff electromagnet Volt: 24 Del. quantity cm3/: 47.00...53.00 1000s.: (44.00...56.00) 1st speed 1/min: 1300 Charge press. hPa: 1000 Supply-pump rn speed 1/min: 1300 Charge press. hPa: 1000 Shutoff bar: 7.30...7.90 pressure Shutoff electromagnet Volt: 24 electromagnet Volt: 24 Del. quantity cm3/: 94.00...97.00 1000s.: (92.00...99.00) 1/min: 1100 2nd speed Charge press. hPa: 1000 Supply-pump bar: 6.50...7.10 1/min: 1000 pressure 10th speed Shutoff Charge press. hPa: 1000 Shutoff electromagnet Volt: 24 3rd speed 1/min: 500 electromagnet Volt: 24 Charge press. hPa: 1000 Del. quantity cm3/: 93.00...96.00 Supply-pump 1000s.: pressure bar: 3.90...4.50 1/min: 700 12th speed Charge press. hPa: 1000 Shutoff Shutoff electromagnet Volt: 24 electromagnet Volt: 24 Del. quyntity cm3/: 98.50...99.50 Overlow quantity at overflow valve: 1000s.: (96.00...102.00) 1/min: 700 1/min: 500 1st speed 18th speed Charge press. hPa: 1000 Shutoff Shutoff electromagnet Volt: 24 Del. quantity cm3/: 86.50...87.50 1000s.: (84.00...90.00) 21th speed 1/min: 500 electromagnet Volt: 24 : 41.70...83.40 Overflow cm3/10s: (41.70...83.40) 1/min: 1300 quantity 2nd speed Shutoff Charge press. hPa: 1000 electromagnet Volt: 24 Del. quantity cm3/: 81.00...85.00 1000s.: -Shutoff electromagnet Volt: 24 : 55.60...139.00 Overflow cm3/10s: (55.60...139.00) quantity Mech. shutoff:

Mech. Abstellung:

1/min: 1300 1st speed

Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00)

Shutoff

electromagnet volt: 24

Electr. shutoff:

1/min: 300 1st speed

Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 300

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 16.50...20.50 1000s.: (13.50...23.50) Dispersion cm3/: 5.0

1000s.: (5.0)

2nd speed 1/min: 350

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 4.50...10.50

1000s.: (2.50...12.50)

4th speed 1/min: 400

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 0.00...2.60 1000s.: (0.00...2.60)

Automatic starting fuel delivery:

1/min: 150 1st speed

Shutof F

electromagnet Volt: 24

Del. quantity cm3/: 120.00...160.00

1000s.: (95.00...135.00)

1/min: 230 2nd speed

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 35.00...85.00 1000s.: (35.00...85.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 120.00...160.00

1000s.: (115.00...155.00)

Shutoff electromagnet:

Cut-in

min voltage : 20.0 Rated voltage : 24.0 Mounting and assembly dimensions:

Designation

K mm: -KF mm: K-OT

MS mm: 0.6...1.0

SVS max. mm: 3.2 LDA stroke mm: 6.3

mm: 17.0...19.0 XK

XL mm: 12.8...16.2 mm: 37.2...39.2 Ya

Yb mm: 50.6...58.8

Remarks:

Overflow restriction 0.55 mm - Part No.

..303

Note inst. in remarks column

Test scheet : PER : 11.06.92 Edition : 15.07.91 replaces : ISO-4113 Calibrating oil

Injection pump : VE6/12F130CR241 : 0 460 426 085 Type number

Customer Part-No. :

Customer-specific information Customer : PERKINS

: T6 60 Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil °C return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 020 assembly

Openina

bar: 172.00...175.00 Pressure

Perforated-plate

mm: 0.6 diameter

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1100 Speed Charge press. hPa: 1000

Setting value mm: 2.10...2.50

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1100 Speed

Charge press hPa: 1000 Setting value bar: 7.20...7.80

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1000 Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 92.00...93.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.5 1000s.: (4.0)

Full-load del. w/out charge press.:

Speed 1/min: 700

Del. quantity cm3/

1000s.: 77.50...80.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 350 Speed

Del. quantity cm3/

1000s.: 13.00...17.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.5 1000s.: (4.0)

Full-load speed regulation

Speed 1/min: 1400 hPa: 1000 Charge press

Del. quantity cm3/

1000s.: 52.00...58.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 90.00...130.00

mind 1000s.: 90.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:	1nd speed 1/min: 700*
O 4 5 4/1 4700	† Charge-air pressure-setting
2nd speed 1/min: 1300	+ point hPa: 350
Charge press hPa: 1000	† LDA-stroke mm: 6.1
TD travel mm: 2.903.70	† Shutoff
mm: (2.604.00)	† electromagnet Volt: 12
Shutoff	† Del. quantity cm3/: 84.5085.50
electromagnet Volt: 12	+ 1000s.: (81.5088.50)
3rd speed 1/min: 1100	🕂 2nd speed 1/min: 1530
Charge press hPa: 1000	+ Charge press. hPa: 1000
TD travel mm: 2.102.50	+ Shutoff
mm: (1.603.00)	+ electromagnet Volt: 12
Shutoff	Del. quantity cm3/: 0.003.00
electromagnet Volt: 12	10008.: (0.003.00)
4th speed 1/min: 950	+ 3rd speed 1/min: 1480
Charge press hPa: 1000	Charge press. hPa: 1000
TD travel mm: 0.501.10	+ Shutoff
mm: (0.101.50)	+ electromagnet Volt: 12
Shutoff	+ Del. quantity cm3/: 8.0024.00
electromagnet Volt: 12	10008: (6.0026.00)
etectionagnet vott. 12	+ 5th speed 1/min: 1400
Cimplication processes should their	
Supply-pump pressure characteristic:	Charge press. hPa: 1000
1-t	+ Shutoff
1st speed 1/min: 1300	+ electromagnet Volt: 12
Charge press. hPa: 1000	+ Del. quantity cm3/: 52.0058.00
Supply-pump	1000\$.: (49.0061.00)
pressure bar: 8.008.60	+ 9th speed 1/min: 1300
Shutoff	+ Charge press. hPa: 1000
electromagnet Volt: 12	+ Shutoff
2nd speed 1/min: 1100	+ electromagnet Volt: 12
Charge press. hPa: 1000	+ Del. quantity cm3/: 83.0086.00
Supply-pump	1000s.: (81.0088.00)
pressure bar: 7.207.80	+ 10th speed 1/min: 700
Shutoff	+ Charge press. hPa: 1000
electromagnet Volt: 12	+ Shutoff
3rd speed 1/min: 700	+ electromagnet Volt: 12
Charge press. hPa: 1000	Pel. quantity cm3/: 89.5092.50
Supply-pump	10008.: (87.5094.50)
pressure bar: 5.506.10	+ 12th speed 1/min: 1000
Shutoff	Charge press. hPa: 1000
electromagnet Volt: 12	Shutoff
ctectionagnet vott. 12	+ electromagnet Volt: 12
Overlow quantity at overflow valve:	
over tow qualitity at over tow valve.	+ Del. quyntity cm3/: 92.0093.00 + 1000s.: (89.5095.50)
1st annot 1/min. 500	
1st speed 1/min: 500	+ 18th speed 1/min: 700
Charge press. hPa: 1000	+ Shutoff
Shutoff	+ electromagnet Volt: 12
electromagnet Volt: 12	+ Del. quantity cm3/: 77.5080.50
Overflow : 41.7083.40	1000\$.: (76.0082.00)
quantity cm3/10s: (41.7083.40)	+ 20th speed 1/min: 500
2nd speed 1/min: 1300	+ Shutoff
Charge press. hPa: 1000	+ electromagnet Volt: 12
Shutoff	+ Del. quantity cm3/: 71.5074.50
electromagnet Volt: 12	† 1000s.: (69.5076.50)
Overflow : 55.60139.00	+
quantity cm3/10s: (55.60139.00)	<pre># Mech. shutoff:</pre>
	+ Mech. Abstellung:
Delivery-quant. and breakaway char.:	+
• • • • • • • • • • • • • • • • • • •	+ 1st speed 1/min: 1300
	+
	•

Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet volt: 12 Electr. shutoff: 1st speed 1/min: 350 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Idle delivery: 1st speed 1/min: 350 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 13.00...17.00 1000s.: (10.00...20.00) Dispersion cm3/: 3.51000s.: (4.0) 1/min: 400 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 4.00...10.00 1000s.: (2.00...12.00) 1/min: 450 4th speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Automatic starting fuel delivery: 1st speed 1/min: 150 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 100.00...140.00 1000s.: (100.00...140.00) 2nd speed 1/min: 250 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 40.00...70.00 1000s.: (40.00...70.00) 1/min: 100 4th speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 90.00...130.00 1000s.: (90.00...130.00) Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions:

mm: -KF mm: K-OT mm: 1.1...1.3 MS SVS max. mm: 6.0 LDA stroke mm: 6.1 mn: 20.0...22.0 XK mm: 10.5...13.9 XL mm: 37.2...39.2 Ya mm: 44.9...53.5 Yb

Remarks: Overflow restriction 0.55 mm - Part No.

Designation

Note inst. in remarks column

Test scheet : CUM Edition : 09.06.92 replaces : 14.07.88 Calibrating oil : ISO-4113

: VE6/12F1000R225-15 Injection pump Type number : 0 460 426 093

Customer Part-No. :

Customer-specific information

Customer : CDC

: 6BT- 5.9 IND. Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

Pressure bar: 250.00...253.00

Perforated-plate

mm: 0.5 diameter

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Indicator setting

Piston stroke mm: 1.5 **Outlet** : D

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 750 **Speed**

Setting value mm: 3.50...3.90

Shutoff

electromagnet Volt: 24

Supply-pump pressure

1/min: 750 Speed

Setting value bar: 3.50...4.10

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

1/min: 900 Speed

Del. quantity cm3/ 1000s.: 72.00...73.00

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 4.0 1000s.: (4.5)

Low-idle speed regulation

1/min: 375

Del. quantity cm3/

1000s.: 8.00...14.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

1/min: 1040 Speed

Del. quantity cm3/

1000s.: 53.50...59.50

electromagnet Volt: 24

Start:

1/min: 100 Speed

Del. quantity cm3/: 60.00...120.00

1000s.: 60.00

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1000 2nd speed

mm: 4.60...5.40 TD travel

mm: (4.30...5.70)

Shutoff

electromagnet Volt: 24 1/min: 750 3rd speed

mm: 3.50...3.90 TD travel mm: (3.00...4.40)

Del. quantity cm3/: 15.00...45.00 1000S.: (15.00...45.00) 9th speed 1/min: 1000 Shutoff electromagnet Volt: 24 1/min: 500 4th speed mm: 1.40...2.20 TD travel Shutoff mm: (1.10...2.50) electromagnet Volt: 24 Del. quantity cm3/: 68.50...71.50 1000s.: (67.00...73.00) 11th speed 1/min: 750 Shutoff electromagnet Volt: 24 Supply-pump pressure characteristic: Shutoff electromagnet Volt: 24
Del. quantity cm3/: 71.50...75.50
1000s.: (69.50...77.50)
12th speed 1/min: 900 1/min: 500 1st speed Supply-pump pressure bar: 2.40...3.00 12th speed Shutoff Shutoff electromagnet Volt: 24
Del. quyntity cm3/: 72.00...73.00
1000s.: (69.50...75.50) electromagnet Volt: 24 2nd speed 1/min: 750 Supply-pump 1/min: 500 pressure bar: 3.50...4.10 20th speed Shutoff Shutoff electromagnet Volt: 24 Del. quantity cm3/: 57.00...65.00 1000s.: (55.00...67.00) electromagnet Volt: 24 1/min: 1000 3rd speed Supply-pump bar: 4.60...5.20 pressure Shutoff Mech. shutoff: electromagnet Volt: 24 Mech. Abstellung: Overlow quantity at overflow valve: 1st speed 1/min: 500 1000s.: (0.00...3.00) Shutoff Shutoff electromagnet Volt: 24 electromagnet volt: 24 Overflow : 41.70...83.40 quantity cm3/10s: (41.70...83.40) Electr. shutoff: 2nd speed 1/min: 1000 Shutoff 1st speed 1/min: 375 electromagnet Volt: 24 Del. quantity cm3/: 0.00...3.00 Overflow : 55.60...139.00 1000s.: (0.00...3.00) cm3/10s: (55.60...139.00) quantity Idle delivery: Delivery quant. and breakaway char.: 1st speed 1/min: 375 Shutoff 2nd speed 1/min: 1120 electromagnet Volt: 24 Del. quantity cm3/: 8.00...14.00 1000s.: (6.00...16.00) Dispersion cm3/: 5.5 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 1000s.: (7.0) 1/min: 1100 3rd speed 2nd speed 1/min: 450 Shutoff Shutoff electromagnet Volt: 24 electromagnet Volt: 24 Del. quantity cm3/: 0.00...4.00 1000s.: (0.00...4.00) Del. quantity cm3/: 0.00...15.00 1000s.: (0.00...15.00) 1/min: 1040 5th speed Shutoff Automatic starting fuel delivery: electromagnet Volt: 24 Del. quantity cm3/: 53.50...59.50 1000s.: (50.50...62.50) 1st speed 1/min: 130 Shutoff 1/min: 1060 8th speed electromagnet Volt: 24 Del. quantity cm3/: 60.00...120.00 1000s.: (60.00...120.00) Shutoff electromagnet Volt: 24

2nd speed 1/min: 240

Shutoff

electromagnet Volt: 24
Del. quantity cm3/: 30.00...60.00
1000S.: (30.00...60.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 24

Del. quantity cm5/: 60.00...120.00 1000S:: (60.00...120.00)

Shutoff electromagnet:

Cut-in

: 20.0 : 24.0 min voltage Rated voltage

Mounting and assembly dimensions:

Designation

K mn: -

KF mm: 5.0...5.4 MS mm: 0.8...1.2

SVS max. mm: 1.2

nm: 18.8...20.8 nm: 11.7...15.1 nm: 34.8...38.8 XX XL Ya mm: 42.2...47.8 Yb

Remarks:

: C.D.C. # 391 2561

Note inst. in remarks column

Test scheet : PER : 11.06.92 Edition replaces : 06.11.89 Calibrating oil : ISO-4113

Injection pump : VE6/12F1300R240-2 Type number : 0 460 426 094

Customer Part-No.:

Customer-specific information Customer : PERKINS

Engine : T6 60 cc Truck

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. with thermometer: 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 020

Opening

bar: 172.00...175.00 Pressure

Perforated-plate

diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

mm: 0.25 Prestroke

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke mm: 1.0 mm: +-0.02Outlet

: A

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1100 Speed Charge press. hPa: 1000 Setting value mm: 1.30...1.70

Supply-pump pressure

1/min: 1100 Speed Charge press hPa: 1000

Setting value bar: 6.50...7.10

Full-load del. with charge press.:

Speed 1/min: 700 Charge press. hPa: 1000

Del. quantity cm3/ 10COs.: 99.00...100.00 Dispersion cm3/: 5.0 1000s.: (5.0)

Full-load del. w/out charge press.:

1/min: 700 Speed Del. quantity cm3/

1000s.: 87.00...88.00

Low-idle speed regulation

1/min: 300 Speed

Del. quantity cm3/

1000s.: 16.50...20.50

Del. quantity cm3/: 5.0 1000s.: (5.0)

Full-load speed regulation

1/min: 1450 Speed Charge press hFa: 1000

Del. quantity cm3/

1000s.: 47.00...53.00

Start:

1/min: 100

Del. quantity cm3/: 120.00...160.00

1000s.: 120.0 mind

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1300 hPa: 1000 Charge press

mm: 2.00...2.80 TD travel

mm: (1.70...3.10)

1/min: 1100 3rd speed Charge press

hPa: 1000 mm: 1.30...1.70 TD travel mm: (0.80...2.20)

4th speed 1/min: 1000

Del. quyntity cm3/: 99.00...100.00 1000S.: (96.50...102.50) 18th speed 1/min: 700 Del. quantity cm3/: 87.00...88.00 1000S.: (84.50...90.50) 20th speed 1/min: 500 Del. quantity cm3/: 80.00...83.00 1000S.: (78.50...84.50) Charge press hPa: 1000 TD travel mm: 0.40...1.20 mm: (0.10...1.50) Supply-pump pressure characteristic: 1/min: 1300 1st speed Charge press. hPa: 1000 Supply-pump pressure bar: 7.30...7.90 Mech. shutoff: 1/min: 1100 2nd speed Mech. Abstellung: Charge press. hPa: 1000 Supply-pump pressure bar: 6.50...7.10 3rd speed 1/min: 500 1000s.: (0.00...3.00) Charge press. hPa: 1000 Supply-pump Idle delivery: pressure bar: 3.90...4.50 Overlow quantity at overflow valve: 1000s.: (13.50...23.50) 1st speed Overflow cm3/: 5.0 1/min: 500 Dispersion : 41.70...83.40 1000s.: (5.0) cm3/10s: (41.70...83.40) quantity 1/min: 350 2nd speed 1/min: 1300 Del. quantity cm3/: 4.50...10.50 1000s.: (2.50...12.50) 2nd speed Charge press. hPa: 1000 4th speed 1/m2n: 400 Del. quantity cm3/: 0.00...2.60 : 55.60...139.00 Overflow cm3/10s: (55.60...139.00) quantity 1000s.: (0.00...2.60) Delivery quant. and breakaway char.: Automatic starting fuel delivery: 1nd speed 1/min: 700 1st speed 1/min: 150 Del. quantity cm3/: 120.00...160.00 1000s.: (95.00...135.00) Charge-air pressure-setting point hPa: 400 LDA-stroke mm: 6.3 Del. quantity cm3/: 95.00...96.00 2nd speed 1/min: 230
Del. quantity cm3/: 35.00...85.00
1000S.: (35.00...85.00) 1000s.: (92.50...98.50) 1/min: 1520 2nd speed Charge press. hPa: 1000

Del. quantity cm3/: 13.50...21.50

1000s.: (10.50...24.50)

3rd speed 1/min: 1580

Charge press. hPa: 1000

Del. quantity cm3/: 0.00...7.00

1000s.: (0.00...7.00)

5th speed 1/min: 1450

Charge press. hPa: 1000 4th speed 1/min: 100
Del. quantity cm3/: 120.00...160.00
1000S.: (120.00...160.00) Mounting and assembly dimensions: Designation Charge press. hPa: 1000 K mm: -Del. quantity cm3/: 47.00...53.00 1000s.: (44.00...56.00) KF mm: K-OT MS ran: 0.6...1.0 1/min: 1300 mm: 17.0...19.0 9th speed XK Charge press. hPa: 1000
Del. quantity cm3/: 95.00...98.00
1000S.: (93.50...99.50)
10th speed 1/min: 1000
Charge press. hPa: 1000
Del. quantity cm3/: 99.50...102.50
1000S.: (98.00...104.00) mm: 12.8...16.2 mm: 37.2...39.2 mm: 50.6...58.8 XL Ya Yb Remarks: 12th speed 1/min: 700 Charge press. hPa: 1000

Note inst. in remarks column

Test scheet : CUM Edition : 05.06.92 : 09.11.88 replaces Calibrating oil : ISO-4113

Injection pump : VE6/12F1250R173-8 : 0 460 426 101 Type number

Customer Part-No. :

Customer specific information Customer : CUMMINS/GB

Engine : 6 BTA-590

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

essembly : 1 588 901 027

Opening |

bar: 250.00...253.00 Pressure

Perforated plate

diameter ram: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery

Prestroke mm: 0.3

(from BDC): +0.02(0.04)

Start of delivery block mm: 1.85 Piston stroke

mm: +-0.02(0.06)

Outlet

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 750 Speed Charge press. hPa: 1000

Setting value mm: 1.40...1.80

Supply-pump pressure

1/min: 750 Speed Charge press hPa: 1000

Setting value bar: 3.20...3.80

Full-load del. with charge press.:

1/min: 750 Speed Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 82.00...83.00

Dispersion cm3/: 4.01000s.: (4.5)

Full-load del. w/out charge press.:

1/min: 500 Speed

Del. quantity cm3/

1000s.: 40.00...41.00

Low-idle speed regulation

1/min: 375 Speed

Del. quantity cm3/

1000s.: 4.00...8.00

Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

Speed 1/min: 1300 hPa: 1000 Charge press

Del. quantity cm3/

1000s.: 65.00...71.00

Start:

Speed 1/min: 100 Del. quantity cm3/: 70.00...120.00 mind 1000s.: 70.00

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1050 2nd speed hPa: 1000 Charge press

mm: 2.30...3.10 TD travel mm: (2.00...3.40) 1/min: 750

3rd speed hPa: 1000 Charge press

TD travel mm: 1.40...1.80

mm: (0.90...2.30)

1/min: 600 4th speed

Del. quyntity cm3/: 82.00...83.00 1000s.: (79.50...85.50) Charge press hPa: 1000 mm: 0.40...1.20 TD travel mm: (0.10...1.50) 1/min: 500 18th speed Del. quantity cm3/: 40.00...41.00 1000s.: (36.00...45.00) Supply-pump pressure characteristic: 20th speed 1/min: 500 1/min: 500 1st speed Charge press. hPa: 1000 Charge press. hPa: 1000 Del. quantity cm3/: 82.00...90.00 Supply-pump pressure bar: 2.10...2.70 2nd seed 1/min: 750 Charge press. hPa: 1000 Mech. shutoff: Mech. Abstellung: Supply-pump bar: 3.20...3.80 1/min: 1050 pressure 3rd speed 1000s.: (0.00...3.00) Charge press. hPa: 1000 Supply-pump Idle delivery: pressure bar: 4.30...4.90 1/min: 375 1st speed Overtow quantity at overflow valve: Del. quantity cm3/: 4.00...8.00 1**000**s.: (1.00...11.00) cm3/: 5.5 1000s.: (7.0) 1/min: 500 1/min: 500 1st speed Dispersion : 41.70...83.40 Overflow quantity cm3/10s: (41.70...83.40) 2nd speed 1/min: 1250 Charge press. hPa: 1000 2nd speed Del. quantity cm3/: 0.00...4.00 1000s.: (0.00...4.00) Overflow : 55.60...139.00 cm3/10s: (55.60...139.00) quantity Automatic starting fuel delivery: Delivery-quant. and breakaway char.: 1st speed 1/min: 200 Del. quantity cm3/: 60.00...110.00 1000s.: (60.00...110.00) 1/min: 700 1nd speed 2nd speed 1/min: 370 Del. quantity cm3/: 20.00...60.00 Charge-air pressure-setting point hPa: 450 LDA-stroke mm: 7.0 Del. quantity cm3/: 67.00...68.00 1000s.: (63.00...72.00) 2nd speed 1/min: 1400 Charge press hPa: 1000 1000s.: (20.00...60.00) 4th speed 1/min: 100 Del. quantity cm3/: 70.00...120.00 Charge press. hPa: 1000
Del. quantity cm3/: 0.00...3.00
1000s.: (0.00...3.00)
3rd speed 1/min: 1330 1000s.: (70.00...120.00) Mounting and assembly dimensions: Charge press. hPa: 1000

Del. quantity cm3/: 15.50...55.50

1000s.: (15.50...55.50)

Sth speed 1/min: 1300

Charge press. hPa: 1000

Del. quantity cm3/: 65.00...71.00

1000s.: (62.00...74.00)

9th speed 1/min: 1250

Charge press. hPa: 1000 Designation mm: KF mm: 5.0...5.4 MS mm: 1.2...1.6 SVS max. mm: 2.2 XK mm: 18.8...20.8 XL mm: 12.9...16.3 Ya mm: 34.8...38.8 mm: 42.7...48.1 Charge press. hPa: 1000 Yb Del. quantity cm3/: 73.50...76.50 1000s.: (72.00...78.00) Remarks: 1/min: 1050 10th speed : C.D.C. # 3 278 482 Charge press. hPa: 1000
Del. quantity cm3/: 78.00...81.00
1000s.: (76.50...82.50)
12th speed 1/min: 750

Charge press. hPa: 1000

Note inst. in remarks column

Test scheet : CUM : 05.06.92 Edition replaces : 11.07.89 Calibrating oil : ISO-4113

: VE6/12F1250R173-9 Injection pump : 0 460 426 102 Type number

Customer Part-No. :

Customer-specific information Customer : CUMMINS/US

: 6 BTA-590IND. Engine

TEST BENCH REQUIREMENTS

Calibrating oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 027

Opening |

Pressure bar: 250.00...253.00

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Vall thickness : 2.00 x Length mm: 840

Start of delivery

mm: 0.3 Prestroke

(from BDC): +0.02(0.04)

Start of delivery block Piston stroke mm: 1.85

mm: $\leftarrow 0.02(0.06)$

Outlet

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 750 Speed Charge press. hPa: 1000

Setting value mm: 1.30...1.70

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 750

Charge press hPa: 1000 Setting value bar: 3.20...3.80

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 750 Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 84.50...85.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0 1000s.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500

Del. quantity cm3/

1000s.: 68.50...69.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 375 Speed

Del. quantity cm3/

1000s.: 8.00...14.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

Speed 1/min: 1300 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 59.00...65.00

Start:

Speed 1/min: 100 Del. quantity cm3/: 70.00...120.00

1000s.: 70.00 mind

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

	4 1nd speed 1/min: 700
Timing-device characteristic:	+ Charge-air pressure-setting + point hPa: 400
2nd speed 1/min: 1050	point hPa: 400 Shutoff
Charge press hea: 1000	electromagnet Volt: 12
TD travel mm: 2.002.80	Del. quantity cm3/: 77.5078.50
mm: (1.703.10)	10005.: (74.0082.00)
Shutoff	+ 2nd speed 1/min: 1400
electromagnet Volt: 12	+ Charge press. hPa: 1000
3rd speed 1/min: 750	+ Shutoff
Charge press hPa: 1000	+ electromagnet Volt: 12
To travel mm: 1.301.70	+ Del. quantity cm3/: 0.003.00
mm: (0.802.20)	10008.: (0.003.00)
Shutoff	3rd speed 1/min: 1330
electromagnet Volt: 12 4th speed 1/min: 600	+ Charge press. hPa: 1000 - Shutoff
Charge press hPa: 1000	+ electromagnet Volt: 12
TD travel mm: 0.401.20	Del. quantity cm3/: 15.0055.00
mm: (0.101.50)	1000s.: (15.0055.00)
Shutoff	+ 5th speed 1/min: 1300
electromagnet Volt: 12	- Charge press. hPa: 1000
	+ Shutoff
Supply-pump pressure characteristic:	+ electromagnet Volt: 12
	+ Del. quantity cm3/: 59.0065.00
1st speed 1/min: 500	+ 1000s.: (56.0068.00)
Charge press. hPa: 1000	+ 9th speed 1/min: 1250
Supply-pump	+ Charge press. hPa: 1000
pressure bar: 2.202.80	+ Shutoff
Shutoff	+ electromagnet Volt: 12
electromagnet Volt: 12	+ Del. quantity cm3/: 76.0079.00
2nd speed 1/min: 750	1000s.: (74.5080.50)
Charge press. hPa: 1000 Supply-pump	10th speed 1/min: 1050 Charge press. hPa: 1000
pressure bar: 3.203.80	+ Shutoff
Shutoff	electromagnet Volt: 12
electromagnet Volt: 12	Del. quantity cm3/: 80.5083.50
3rd speed 1/min: 1050	10008.: (78.5085.50)
Charge press. hPa: 1000	12th speed 1/min: 750
Supply-pump	+ Charge press. hPa: 1000
pressure bar: 4.505.10	+ Shutoff
Shutoff	+ electromagnet Volt: 12
electromagnet Volt: 12	+ Del. quyntity cm3/: 84.5085.50
	10005.: (32.00,88.00)
Overlow quantity at overflow valve:	18th speed 1/min: 500
1st speed 1/min: 500	+ Shutoff + electromagnet Volt: 12
Shutoff	+ Del. quantity cm3/: 68.5069.50
electromagnet Volt: 12	1000s.: (65.0073.00)
Overflow : 41.7083.40	7 20th speed 1/min: 500
quantity cm3/10s: (41.7083.40)	Charge press. hPa: 1000
2nd speed 1/min: 1250	+ Shutoff
Charge press. hPa: 1000	electromagnet Volt: 12
Shutoff	+ Del. quantity cm3/: 84.0092.00
electromagnet Volt: 12	+
Overflow : 55.60139.00	+ Mech. shutoff:
quantity cm3/10s: (55.60139.00)	+ Mech. Abstellung:
National mane and because the	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Delivery-quant. and breakaway char.;	1 1st speed 1/min: 1250
	bel. quantity cm3/: 0.003.00
	+ 1000s.: (0.003.00)

Shutoff

electromagnet volt: 12

Electr. shutoff:

1/min: 375 1st speed

Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 375

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 8.00...14.00

1000s.: (6.00...16.00)

cm3/: 5.5 Dispersion

1000s.: (7.0)

2nd speed 1/min: 500

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 0.00...4.00

1000s.: (0.00...4.00)

Automatic starting fuel delivery:

1/min: 250 1st speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 70.00...120.00

1000\$.: (70.00...120.00)

2nd speed 1/min: 450

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 48.00...88.00

1030s.: (48.00...88.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 70.00...120.00

1000S.: (70.00...120.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: -

KF mm: 5.0...5.4

MS mm: 1.0...1.4

SVS max. mm: 2.0

XK mm: 18.8...20.8

XL mm: 13.8...17.2

Ya mm: 34.8...38.8

Yb

mm: 44.2...49.6

Remarks:

: C.D.C. # 390 8219

Operate control lever after each

manifold-pressure compensator pressure

change.

* Correction at adjusting nut (46)

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Note inst. in remarks column

Test scheet : CUM
Edition : 15.06.92
replaces : 16.05.89
Calibrating oil : ISO-4113

Injection pump : VE6/12F1250R278 Type number : 0 460 426 103

Customer Part-No. :

Customer—specific information Customer : CDC

Engine : 6 BT- 590A CHRYSLER

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 027

Opening

Pressure bar: 250.00...253.00

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery block Piston stroke mm: 1.4

mm: +-0.02(0.06)

Outlet : D

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100 Charge press. hPa: 1200

Setting value mm: 1.30...1.70

AFB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1100 Charge press hPa: 1200

Setting value bar: 6.80...7.40

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1100 Charge press. hPa: 1200

Del. quantity cm3/

1000s.: 73.00...74.00

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0 1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500

Del. quantity cm3/

1000s.: 51.00...52.00

11

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 9.0 1000s.: (9.0)

Low-idle speed regulation

Speed 1/min: 350

Del. quantity cm3/

1000s.: 5.50...9.50

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

Speed 1/min: 1340 Charge press hPa: 1200

Del. quantity cm3/

1000s.: 52.50...58.50

Start:

Shutoff electromagnet Volt: 12 3rd speed 1/min: 1250 Speed 1/min: 100 Del. quantity cm3/: 60.00...160.00 mind 1000s.: 60.00 Charge press. hPa: 1200 KSB/AFB Supply-pump Valve Volt: 12 bar: 7.50...8.10 pressure Shutoff KSB/AFB electromagnet Volt: 12 Volt: 12 valve Shutoff Inspection-pump test specifications electromagnet Volt: 12 Test specifications in parentheses Overlow quantity at overflow valve: Timing-device characteristic: 1st speed 1/min: 500 1/min: 1250 hPa: 1200 2nd speed KSB/AFB Charge press valve Volt: 12 mm: 2.20...3.00 TD travel Shutoff mm: (1.90...3.30) electromagnet Volt: 12 KSB/AFB Overflow : 41.70. .83.40 valve Volt: 12 cm3/10s: (41.70...83.40) quantity Shutoff 2nd speed 1/min: 1250 Charge press. hPa: 1200 electromagnet Volt: 12 1/min: 1100 3rd speed -KSB/AFB Charge press hPa: 1200 valve Volt: 12 mm: 1.30...1.70 ID travel Shutoff mm: (0.80...2.20) electromagnet Volt: 12 : 55.60...139.00 KSB/AFB Overflow Volt: 12 cm3/10s: (55.60...139.00) valve quantity Shutoff electromagnet Volt: 12 Delivery-quant. and breakaway char .: 4th speed 1/min: 1000 Charge press hPa: 1200 TD travel mm: 0.50...1.30 1/min: 700 1nd speed mm: (0.20...1.60) Charge-air pressure-setting point hPa: 700 KSB/AFB valve Volt: 12 mm: 6.2 LDA-stroke Shutoff KSB/AFB electromagnet Volt: 12 valve Volt: 12 1/min: 450 8th speed Shutoff TD travel mm: 3.00...4.00 electromagnet Volt: 12 mn: -Del. quantity cm3/: 68.00...69.00 1000s.: (64.50...72.50) 1/min: 1550 Shutoff electromagnet Volt: 12 2nd speed Charge press. hPa: 1200 Supply-pump pressure characteristic: KSB/AFB valve Volt: 12 1st speed 1/min: 500 Shutoff Charge press. hPa: 1200 electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Supply-pump bar: 4.10...4.70 pressure 4th speed 1/min: 1410 Charge press. hPa: 1200 KSB/AFB valve Volt: 12 Shutoff KSB/AFB Volt: 12 electromagnet Volt: 12 valve 1/min: 1100 2nd speed Shutoff Charge press. hPa: 1200 electromagnet Volt: 12 Del. quantity cm3/: 15.00...55.00 Supply-pump bar: 6.80...7.40 1000s.: (15.00...55.00) pressure 1/min: 1340 KSB/AFB 5th speed valve Volt: 12 Charge press. hPa: 1200

GO2

KSB/AFB	+	Del. quantity cm3/:	0.003.00
valve Volt:	12 +		(0.003.00)
Shutoff	†	KSB/AFB	
electromagnet Volt:		valve Volt:	12
Del. quantity cm3/:			
	(49.5061.50)	Idle delivery:	
9th speed 1/min:			
Charge press. hPa:	1200 +	1st speed 1/min:	350
KSB/AFB	·-	KSB/AFB	
valve Volt:	12 +	valve Volt:	12
Shutoff	+	Shutoff	
electromagnet Volt:	12 🗼	electromagnet Volt:	12
Del. quantity cm3/:		Del. quantity cm3/:	5.509.50
	(67.5073.50)		(2.5012.50)
10th speed 1/min:		Dispersion cm3/:	
Charge press. hPa:		1000s.:	
KSB/AFB	1	2nd speed 1/min:	
valve Volt:	12	KSB/AFB	470
Shutoff	T	valve Volt:	12
	12 T		12
electromagnet Volt: Del. quantity cm3/:		Shutoff	10
		electromagnet Volt:	
	(70.0079.00)	Del. quantity cm3/:	
12th speed 1/min:			(0.004.00)
Charge press. hPa:	1200 +	3rd speed 1/min:	<i>50</i> 0
KSB/AFB	' t	KSB/AFB	
valve Volt:	12 +	valve Volt:	12
Shutoff	+	Shutoff	
electromagnet Volt:		electromagnet Volt:	12
Del. quyntity cm3/:	73.0074.00	Del. quantity cm3/:	8.5016.50
1000s.:	(70.5076.50)	1000s.	
18th speed 1/min:	500		
KSB/AFB	+	Automatic starting	fuel delivery:
valve Volt:	12 1		
Shutoff	<u> </u>	1st speed 1/min:	130
electromagnet Volt:	12	KSB/AFB	100
Del. quantity cm3/:		valve Voit:	12
	(47.5055.50)	Timing valve Volt:	
20th speed 1/min:		Shutoff	12
Charge press. hPa:			10
KSB/AFB	7	electromagnet Volt:	1C
	13	Del. quantity cm3/:	30.00100.00 340.00100.00
valve Volt:	12 .	10005.:	(60.00160.00)
Shutoff	1	2 1 . 1 4/ •	252
electromagnet Volt:		2nd speed 1/min:	250
Del. quantity cm3/:		KSB/AFB	40
1000s.:	- +	valve Volt:	12
	†	Shutoff	
Mech. shutoff:	+	electromagnet Volt:	
Mech. Abstellung:	+	Del. quantity cm3/:	30.0050.00
	+	1000s.:	(30.0050.00)
1st speed 1/min:	1250 +		
Del. quantity cm3/:	0.003.00	4th speed 1/min:	100
1000s.:	(0.003.00)	KSB/AFB	
Shutoff	- ↓	valve Volt:	12
electromagnet volt:	12 🗼	Shutoff	· -
KSB/AFB	1	electromagnet Volt:	12
valve Volt:	12	Del. quantity cm3/:	
	1		(60.00160.00)
Electr. shutoff:	1	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	100,007
	I	Shutoff electromagne	a † •
1st speed 1/min:	350 I	Saucor Crecti Gliagin	• • •

G03

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.7
KF mm: K-OT
MS mm: 1.0...1.4
SVS max. mm: 1.4
LDA stroke mm: 6.2
XK mm: 18.8...20.8

 XK
 mm: 18.8...20.8

 XL
 nm: 12.5...15.9

 Ya
 nm: 34.8...38.8

 Yb
 nm: 42.1...47.7

Remarks:

: C.D.C. # 391 0769

Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut (46)

Note inst. in remarks column

Test scheet : CUM Edition : 15.06.92 replaces : 09.11.88 Calibrating oil : ISO-4113

: VE6/12F1100R296 Injection pump Type number : 0 460 426 105

Customer Part-No. :

Customer-specific information

Customer

Engine : 6 BT- 590 I TRAKTOR

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

Pressure bar: 250.00...253.00

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke

mm: +-0.02(0.06)

Outlet

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 750

Charge press. hPa: 1000 Setting value mm: 3.10...3.50 Setting value

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 750 Speed hPa: 1000 Charge press

Setting value bar: 4.10...4.70

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 750 Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 82.50...83.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0 1000s.: (4.5)

Full-load del. w/out charge press.:

1/min: 500 Speed

Del. quantity cm3/

1000s.: 39.00...40.00

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 400 Speed

Del. quantity cm3/

1000s.: 4.00...10.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

1/min: 1170 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 50.00...56.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 65.00...105.00 mind 1000s.: 65.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses 1nd speed 1/min: 700 Timing-device characteristic: Charge-air pressure-setting point hPa: 400 1/min: 1100 2nd speed Shutoff electromagnet Volt: 12
Del. quantity cm3/: 76.50...77.50
1000S.: (73.00...81.00)
2nd speed 1/min: 1300
Charge press. hPa: 1000
Shutoff Charge press hPa: 1000 TD travel mm: 5.10...5.90 mm: (4.80...6.20) Shutoff electromagnet Volt: 12
3rd speed 1/min: 750
Charge press hPa: 1000
TD travel mm: 3.10...3.50
mm: (2.60...4.00) electromagnet Volt: 12
Del. quantity cm3/: 0.00...3.00
1000s.: (0.00...3.00) Shutoff 1/min: 1200 3rd speed Charge press. hPa: 1000 electromagnet Volt: 12 1/min: 500 Shutoff 4th speed electromagnet Volt: 12
Del. quantity cm3/: 15.00...55.00
1000s.: (15.00...55.00) hPa: 1000 Charge press mm: 1.00...1.80 TD travel mm: (0.70...2.10) Shutoff 1/min: 1170 5th speed Charge press. hPa: 1000 electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 50.00...56.00 1000s.: (47.00...59.00) Supply-pump pressure characteristic: 1st speed 1/min: 500 Charge press. hPa: 1000 1/min: 1100 9th speed Supply-pump Charge press. hPa: 1000 Shutoff bar: 3.00...3.60 pressure Shucoff electromagnet Volt: 12 Del. quantity cm3/: 66.50...69.50 1000s.: (65.00...71.00) electromagnet Volt: 12 2nd speed 1/min: 750 Charge press. hPa: 1000 10th speed 1/min: 900 Charge press. hPa: 1000 Supply-pump pressure bar: 4.10...4.70 Shutoff electromagnet Volt: 12
Del. quantity cm3/: 72.00...75.00
1000s.: (70.00...77.00)
12th speed 1/min: 750 Shutoff electromagnet Volt: 12 3rd speed 1/min: 1100 Charge press. hPa: 1000 Charge press. hPa: 1000 Shutoff Supply-pump bar: 5.70...6.30 pressure electromagnet Volt: 12 Del. quyntity cm3/: 82.50...83.50 Shutoff electromagnet Volt: 12 1000s.: (80.00...86.00) 1/min: 500 Overlow quantity at overflow valve: 18th speed Shutoff 1/min: 500 1st speed Shutoff electromagnet Volt: 12 : 41.70...83.40 Overflow cm3/10s: (41.70...83.40) quantity 1/min: 1100 Shutoff 2nd speed Charge press. hPa: 1000 electromagnet Volt: 12 Del. quantity cm3/: 82.00...90.00 Shutoff 1000s.: electromagnet Volt: 12 Overflow : 55.60...139.00 cm3/10s: (55.60...139.00) quantity Mech. shutoff: Mech. Abstellung:

Delivery-quant. and breakaway char.:

1st speed 1/min: 1100 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet volt: 12 Electr. shutoff: 1/min: 400 1st speed Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Idle delivery: 1/min: 400 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 4.00...10.00 1000s.: (2.00...12.00) cm3/: 5.5 Dispersion 1000s.: (7.0) 1/min: 500 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...4.00 1000s.: (0.00...4.00) Automatic starting fuel delivery: 1st speed 1/min: 280 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 55.00...105.00 1000s.: (55.00...105.00) 2nd speed 1/min: 380 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.00...55.00 1000s.: (15.00...55.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 65.00...105.00 1000s.: (65.00...105.00) Shutoff electromagnet: Cut-in min voltage : 10.0 : 12.0 Rated voltage Mounting and assembly dimensions: Designation

mn: -

mm: 1.8

mm: 5.0...5.4 mm: 1.3...1.7 XK mm: 18.8...20.8 XL mm: 10.4...13.8 Ya mm: 34.8...38.8 Yb mm: 39.2...44.8

Remarks:

: C.D.C. # 391 2115

* Correction at adjusting nut (46)

G07

SVS max.

K

KF

MS

Note inst. in remarks column

: CUM Test scheet Edition : 10.06.92 : 01.02.89 replaces Calibrating oil : ISO-4113

Injection pump : VE6/12F1100R232-2 Type number : 0 460 426 111

Customer Part-No. :

Customer-specific information Customer : CUMMINS/GB

Engine : 6 BT-5.9 IND

TEST BENCH REQUIREMENTS

Calibrating oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

bar: 250.00...253.00 Pressure

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.3

(from BDC): +0.02(0.06)

Start of delivery block Piston stroke mm: 1.6

mm: +0.02(0.06)

Outlet

Injection pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000 Charge press. hPa: 1000

Setting value mm: 1.80...2.20

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1000 Speed

Charge press hPa: 1000 Setting value bar: 7.40...8.00

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 900 Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 67.50...68.50

Shutoff

electromagnet Volt: 12 cm3/: 4.0 Dispersion 1000s.: (4.5)

Full-load del. w/out charge press.:

1/min: 600 Speed

Del. quantity cm3/

1000s.: 56.50...57.50

Shutoff

electromagnet Volt: 12 cm3/: 9.0Dispersion 1000S.: (9.0)

Low-idle speed regulation

1/min: 340 Speed

Del. quantity cm3/

1000s.: 10.00...12.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

1/min: 1170 Speed Charge press hPa: 1000

Del. quantity cm3/

1000s.: 44.50...50.50

Start:

Speed 1/min: 100

Del. quantity cm3/: 65.00...125.00

mind 1000s.: 65.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses	Shutoff electromagnet Volt: 12
Timing-device characteristic:	Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00)
2nd speed 1/min: 1100 Charge press hPa: 1000 TD travel mm: 2.403.20	Delivery—quant. and breakaway char.
mm: (2.103.50)	1nd speed 1/min: 700
electromagnet Volt: 12	Charge-air pressure-setting point hPa: 400
3rd speed 1/min: 1000	LDA-stroke mm: 7.0
Charge press hPa: 1000	Shutoff
TD travel mm: 1.802.20 + mm: (1.302.70)	electromagnet Volt: 12 Del. quantity cm3/: 66.5067.50
Shutoff 1	1000s.: (63.0071.00)
electromagnet Volt: 12	2nd speed 1/min: 1280
4th speed 1/min: 900 +	Charge press. hPa: 1000
Charge press hPa: 1000	Shutoff
TD travel mm: 0.701.50 + mm: (0.401.80)	electromagnet Volt: 12 Del. quantity cm3/: 0.003.00
Shutoff	10008:: (0.003.00)
electromagnet Volt: 12	3rd speed 1/min: 1230
1	Charge press. hPa: 1000
Supply pump pressure characteristic:	Shutoff
+	electromagnet Volt: 12
1st speed 1/min: 600	Del. quantity cm3/: 0.0015.00
Charge press. hPa: 1000 + Supply-pump +	1000S.: (0.0015.00) 4th speed 1/min: 1200
pressure bar: 5.706.30	4th speed 1/min: 1200 Charge press. hPa: 1303
Shutoff	Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
2nd speed 1/min: 900	Del. quantity cm3/: 15.0055.00
Charge press. hPa: 1000 +	1000s.: (15.0055.00)
Supply-pump	5th speed 1/min: 1170
pressure bar: 7.107.70 + Shutoff	Charge press. hPa: 1000 Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
3rd speed 1/min: 1000	Del. quantity cm3/: 44.5050.50
Charge press. hPa: 1000	1000s.: (41.5053.50)
Supply-pump +	9th speed 1/min: 1100
pressure bar: 7.408.00	Charge press. hPa: 1000
Shutoff +	Shutoff
electromagnet Volt: 12 + 4th speed 1/min: 1100 +	electromagnet Volt: 12 Del. quantity cm3/: 64.5067.50
Charge press. hPa: 1000	10008.: (63.0069.00)
Supply-pump +	11th speed 1/min: 750
pressure bar: 7.908.50	Charge press. hPa: 1000
Shutoff	Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
A company of the set o	Del. quantity cm3/: 68.5072.50
Overlow quantity at overflow valve:	1000S.: (66.5074.50)
1st speed 1/min: 600	12th speed 1/min: 900 Charge press. hPa: 1000
Shutoff	Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
Overflow : 41.7083.40	Del. quyntity cm3/: 67.5068.50
quantity cm3/10s: (41.7083.40)	1000s.: (65.0071.00)
2nd speed 1/min: 1100 +	18th speed 1/min: 600
Charge press. hPa: 1000 +	

Shutoff electromagnet Volt: 12 Del. quantity cm3/: 56.50...57.50 1000s.: (53.00...61.00) 1/min: 600 20th speed Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 72.50...82.50 1000s.: -Mech. shutoff: Mech. Abstellung: 1st speed 1/min: 1100 Charge press. hPa: 1000 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet volt: 12 Electr. shutoff: 1st speed 1/min: 340 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Idle delivery: 1/min: 340 1st speed Shutoff electromagnet Volt: 12
Del. quantity cm3/: 10.00...12.00
10005.: (6.00...16.00) Dispersion cm3/: 5.5 1000s.: (7.0) 2nd speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.90...4.00 1000s.: (0.00...4.00) Automatic starting fuel delivery: 1st speed 1/min: 350 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00...130.00 1000s.: (70.00...130.00) 2nd speed 1/min: 480 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.00...70.00 1000s.: (30.00...70.00) 4th speed 1/min: 100 Shutoff

Del. quantity cm3/: 65.00...125.00 1000s.: (65.00...125.00) Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation mm: -KF mm: 5.0...5.4 MS mm: 1.3...1.7 SVS max. mm: 1.0 LDA stroke mm: 7.0 mm: 21.8...23.8 XK XL mm: 11.7...15.1 mm: 34.8...38.8 Ya Yb mm: 40.8...46.2 Remarks: : C.D.C. # 391 0712

electromagnet Voit: 12

Note inst. in remarks column

Test scheet : MAN : 16.06.92 Edition : 09.11.88 replaces Calibrating oil : ISO-4113

Injection pump : VE6/12F1300R307 Type number : 0 460 426 112

Customer Part-No. :

Customer-specific information Customer

Engine : D 0826 TF LKW_BUS

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 020

Opening |

bar: 172.00...175.00 Pressure

Perforated-plate

diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery

Prestroke mm: 0.2

(from BDC): +-0.02(0.04)

Indicator setting

Piston stroke mm: 1.0 **Outlet** : A

Injection-pump setting values Test specifications in parentheses

Timing device travel

1/min: 1000 Speed

Charge press. hPa: 1000 Setting value mm: 2.80...3.20

Supply-pump pressure

1/min: 1000 Speed Charge press hPa: 1000

Setting value bar: 8.10...8.70

Full-load del. with charge press.:

Speed 1/min: 1000 Charge press. hPa: 1000 Del. quantity cm3/ 1000s.: 120.50...121.50

Dispersion cm3/: 4.0 1000s.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 600 Del. quantity cm3/

1000s.: 88.50...89.50

Low-idle speed regulation

1/min: 300 Speed Del. quantity cm3/

1000s.: 26.50...33.50

Del. quantity cm3/: 3.5 1000S.: (4.0)

Full-load speed regulation

Speed 1/min: 1350 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 107.00...113.00

Start:

1/min: 100 Speed

Del. quantity cm3/: 70.00...130.00 mind 1000s.: 70.00

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1000 Speed Charge press hPa: 1000

cm3/Inj.-qty.

difference 1000s.: 39.50...47.50#

TD-travel dif.measurement

correttore anticipo iniezione (SV)
1.Speed 1/min: 1000
Charge press hPa: 1000

TD-travel

difference mm: 0.80...1.00#

SP press.-dif.measurement

pompa di mandata (FP)

G11

Del. quantity cm3/: 0.00...3.00 1000S.: (0.00...3.00) 1. Speed 1/min: 1000 Charge press hPa: 1000 Supply pump 1/min: 1480 3rd speed pressure Charge press. hPa: 1000 Del. quantity cm3/: 0.00...15.00 1000s.: (0.00...15.00) difference bar: 0.10...0.30* Inspection-pump test specifications 4th speed 1/min: 1430 4th speed 1/min: 1430
Charge press. hPa: 1600
Del. quantity cm3/: 15.00...55.00
1000s.: (15.00...55.00)
Sth speed 1/min: 1350
Charge press. hPa: 1000
Del. quantity cm3/: 107.00...113.00
1000s.: (105.50...114.50)
9th speed 1/min: 1300
Charge press. hPa: 1000 Test specifications in parentheses Timing-device characteristic: 1/min: 1100 hPa: 1000 mm: 3.50...4.30 mm: (3.20...4.60) 1/min: 1000 hPa: 1000 mm: 2.80...3.20 2nd speed Charge press TD travel 3rd speed Charge press TD travel mm: (2.30...3.70) 4th speed 1/min: 900 Charge press hPa: 1000 TD travel mm: 1.50...2.30 mm: (1.20...2.60) Charge press. hPa: 1000 Del. quantity cm3/: 120.50...125.50 1000s.: (119.00...127.00) Supply-pump pressure characteristic: 18th speed 1/min: 600 Del. quantity cm3/: 88.50...89.50 1000s.: (86.50...91.50) 1st speed 1/min: 600 Charge press. hPa: 1000 Supply-pump bar: 5.80...6.40 pressure 20th speed 1/min: 600 2nd speed 1/min: 1000 Charge press. hPa: 1000 Del. quantity cm3/: 118.50...127.50 1000s.: (117.00...129.00) Charge press. hPa: 1000 Supply-pump pressure bar: 8.10...8.70 3rd speed 1/min: 1100 Charge press. hPa: 1000 Mech. shutoff: Mech. Abstellung: Supply-pump bar: 8.50...9.10 pressure 1st speed 1/min: 1300 Del. quantity cm3/: 0.00...3.00 Overlow quantity at overflow valve: 1000s.: (0.00...3.00) 1/min: 600 1st speed Idle delivery: Overflow : 41.70...83.40 cm3/10s: (41.70...83.40) quantity 1st speed 1/min: 300 2nd speed 1/min: 1300 Del. quantity cm3/: 26.50...33.50 1000s.: (24.50...35.50) cm3/: 3.5 1000s.: (4.0) 1/min: 400 Charge press. hPa: 1000 Overflow : 55.60...139.00 Dispersion cm3/10s: (55.60...139.00) quantity 2nd speed Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Delivery-quant. and breakaway char .: 3rd speed 1/min: 350
Del. quantity cm3/: 3.00...12.00
1000S.: (1.50...13.50) 1nd speed 1/min: 600 Charge-air pressure-setting point hPa: 300 Del. quantity cm3/: 104.50...105.50 1000s.: (102.50...107.50) Load-dependent start of delivery: Inj.-qty.dif.measurement: 1/min: 1520 2nd speed Charge press. hPa: 1000 2nd speed 1/min: 1000 Charge press. hPa: 1000

Inj.-qty. cm3/: 11.00..13.00* difference 1000s.: (11.00...13.00) 1/min: 1000 4th speed Charge press. hPa: 1000 Inj.—qty. cm3/: 39.50..47.50# difference 1000s.: (39.50...47.50) 5th speed 1/min: 1000 Charge press. hPa: 1000 Inj. qty. cm3/: 2.00...8.00' difference 1000s.: (2.00...8.00) 1/min: 1000 2nd speed Charge press. hPa: 1000 TD-travel : 0.80...1.00# mm: (0.80...1.00) difference 1/min: 1000 4th speed Charge press. hPa: 1000 TD-travel : 0.10...0.90' mm: (0.10...0.90) difference 1/min: 1000 2nd speed Charge press. hPa: 1000 Supply pump-: 0.10...0.30* pressure bar: (0.10...0.30) difference Automatic starting fuel delivery: 1st speed 1/min: 350 Del. quantity cm3/: 95.00...135.00 1000s.: (95.00...135.00) 2nd speed 1/min: 450 Del. quantity cm3/: 55.00...95.00 1000s.: (55.00...95.00) 1/min: 100 4th speed Del. quantity cm3/: 70.00...130.00 1000s.: (70.00...130.00) Shutoff electromagnet: Cut-in : 10.0 min voltage Rated voltage : 12.0 Mounting and assembly dimensions: MS mm: 0.6...1.0 SVS max. mm: 0.6 mm: 37.4...40.4 Ya Yb mm: 46.4...51.6 Remarks: * Correction at adjusting nut (46)

Note inst. in remarks column

Test scheet : CUM Edition : 10.06.92 replaces : 13.07.89 Calibrating oil : ISO-4113

Injection pump : VE6/12F1100R225-17 Type number : 0 460 426 118

Customer Part-No. :

Customer-specific information

Customer : CDC

Engine : 6BT- 5.9 IND.

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 027

Opening

Pressure bar: 250.00...253.00

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke mm: 1.5

mm: +0.02(0.06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 900

Setting value mm: 4.20...4.60

Shutoff

electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 900

Setting value bar: 4.70...5.30

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 1000

Del. quantity cm3/

1000s.: 67.00...68.00

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 4.0 1000s.: (4.5)

Low-idle speed regulation

Speed 1/min: 400

Del. quantity cm3/

1000s.: 11.00...13.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

Speed 1/min: 1150

Del. quantity cm3/

1000s.: 44.30...50.30

Start:

Speed 1/min: 100

Del. quantity cm3/: 70.00...150.00

mind 1000s.: 70.00

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100

TD travel mm: 5.50...6.30 mm: (5.20...6.60)

Shutoff

electromagnet Volt: 24 3rd speed 1/min: 900

TD travel mm: 4.20...4.60

mm: (3.70...5.10)

Del. quantity cm3/: 0.00...40.00 10005.: (0.00...40.00) Shutoff electromagnet Volt: 24
4th speed 1/min: 750
TD travel mm: 2.90...3.70 1/min: 1150 5th speed Shutoff electromagnet Volt: 24
Del. quantity cm3/: 44.30...50.30
1000s.: (41.30...53.30) mm: (2.60...4.00) Shutoff electromagnet Volt: 24 1/min: 1100 9th speed Supply-pump pressure characteristic: Shutoff 1/min: 500 1st speed Supply-pump pressure bar: 2.90...3.50 11th speed Shutoff Shutoff electromagnet Volt: 24
Del. quantity cm3/: 82.00...87.00
1000S:: (81.00...89.00)
12th speed 1/min: 1000 electromagnet Volt: 24 2nd speed 1/min: 900 Supply-pump pressure bar: 4.70...5.30 Shutoff Shutoff electromagnet Volt: 24
Del. quyntity cm3/: 67.00...68.00
1000s.: (64.50...70.50) electromagnet Volt: 24 3rd speed 1/min: 1100 Supply-pump bar: 5.50...6.10 1/min: 500 pressure 20th speed Shutoff Shutoff electromagnet Volt: 24 Del. quantity cm3/: 85.50...93.50 1000s.: (83.50...95.50) electromagnet Volt: 24 4th speed 1/min: 750 Supply-pump bar: 4.00...4.60 pressure Shutoff Mech. shutoff: electromagnet Volt: 24 Mech. Abstellung: Overlow quantity at overflow valve: 1st speed Shutoff 1/min: 500 1000s.: (0.00...3.00) Shutoff electromagnet Volt: 24 electromagnet volt: 24 : 41.70...83.40 Overflow cm3/10s: (41.70...83.40) 1/min: 1100 quantity Electr. shutoff: 2nd speed Shutoff 1/min: 400 1st speed electromagnet Volt: 24 Del. quantity cm3/: 0.00...3.00 : 55.60...139.00 1000s.: (0.00...3.00) Overflow quantity cm3/10s: (55.60...139.00) Idle delivery: Delivery-quant. and breakaway char.: 1/min: 400 1st speed Shutoff electromagnet Volt: 24
Del. quantity cm3/: 11.00...13.00
1000S.: (7.00...17.00)
Dispersion cm3/: 5.5
1000S.: (7.0)
2nd speed 1/min: 500 1/min: 1240 2nd speed Shutoff Shutoff Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.00...4.00 1000s.: (0.00...4.00) Shutoff Automatic starting fuel delivery: electromagnet Volt: 24

1st speed 1/min: 130

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 80.00...160.00 1000s.: (80.00...160.00)

1/min: 250 2nd speed

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 70.00...100.00 1000s.: (70.00...100.00)

1/min: 100 4th speed

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 70.00...150.00

1000s.: (70.00...150.00)

Shutoff electromagnet:

Cut-in

: 20.0 : 24.0 min voltage Rated voltage

Mounting and assembly dimensions:

Designation

K mm: -

mm: 5.0...5.4 KF mm: 1.3...1.7 MS

SVS max. mm: 2.2

mm: 18.8...20.8 XK

ΧL mm: 10.9...14.3 mm: 34.8...38.8 Ya

Yb rim: 41.6...47.0

Remarks:

: C.D.C. # 391 2126

Note inst. in remarks column

Test scheet

Edition : 05.06.92 replaces : 11.07.89 : ISO-4113 Calibrating oil

Injection pump : VE6/12F1100R173-12

Type number : 0 460 426 126

Customer Part-No. :

Customer-specific information

Customer

: 6 BTA-590 I Engine

TEST BENCH REQUIREMENTS

Calibrating-oil

return temp.

with thermometer: 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 027

Opening

bar: 250.00...253.00 Pressure

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.3

(from BDC): +0.02(0.04)

Start of delivery block Piston stroke mm: 1.85

mm: +-0.02(0.06)

Outlet.

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 750 Speed Charge press. hPa: 1000

Setting value mm: 1.30...1.70

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 750 Speed

Charge press hPa: 1000 Setting value bar: 3.20...3.80

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 750 Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 83.00...84.00

Shutoff

electromagnet Volt: 12 cm3/: 4.0 Dispersion 1000s.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500

Del. quantity cm3/

1000s.: 67.50...68.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 9.01000s.: (9.0)

Low-idle speed regulation

1/min: 375 Speed

Del. quantity cm3/

1000s.: 9.00...13.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

1/min: 1150 Speed Charge press hPa: 1000

Del. quantity cm3/

1000s.: 60.00...66.00

Start:

Speed 1/min: 100 Del. quantity cm3/: 80.00...140.00

1000s.: 80.00 mind

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses ind speed 1/min: 700 Timing-device characteristic: Charge-air pressure-setting hPa: 400 point 2nd speed 1/min: 1100 Shutoff hPa: 1000 mm: 2.20...3,00 mm: (1.90...3.30) Charge press TD travel Shutoff electromagnet Volt: 12 3rd speed 1/min: 750 Charge press. hPa: 1000 Shutoff hPa: 1000 electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 Charge press mn: 1.30...1.70 TD travel mn: (0.80...2.20)and speed 1/min: 1200 Charge press. hPa: 1000 Shutoff 1000s.: (0.00...3.00) Shutoff electromagnet Volt: 12 1/min: 600 4th speed electromagnet Volt: 12
Del. quantity cm3/: 15.00...55.00
1000s.: (15.00...55.00)
5th speed 1/min: 1150 hPa: 1000 Charge press mm: 0.40...1.20 TD travel mm: (0.10...1.50) Shutoff Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Supply-pump pressure characteristic: electromagnet Volt: 12 Del. quantity cm3/: 60.00...66.00 1000s.: (57.00...69.00) 9th speed 1/min: 1100 Charge press. hPa: 1000 Shutoff 1st speed 1/min: 600 Charge press. hPa: 1000 Supply-pump pressure bar: 2.60...3.20 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 78.50...81.50 1000s.: (77.00...83.00) electromagnet Volt: 12 2nd speed 1/min: 750 Charge press. hPa: 1000 1/min: 900 10th speed Charge press. hPa: 1000 Shutoff Supply-pump pressure bar: 3.20...3.80 Shutoff electromagnet Volt: 12 3rd speed 1/min: 1100 Charge press. hPa: 1000 Supply-pump Charge press. hPa: 1000 bar: 4.70...5.30 pressure Shutoff electromagnet Volt: 12 Del. quyntity cm3/: 83.00...84.00 1000s.: (80.50...86.50) Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 18th speed 1/min: 500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 67.50...68.50 1000s.: (63.50...72.50) 1st speed 1/min: 500 Shutoff electromagnet Volt: 12 : 41.70...83.40 Overflow 1/min: 500 20th speed quantity cm3/10s: (41.70...83.40) Charge press. hPa: 1000 2nd speed 1/min: 1100 Shutoff Charge press. hPa: 1000 electromagnet Volt: 12 Del. quantity cm3/: 81.00...89.00 Shutoff electromagnet Volt: 12 1000s.: -: 55.60...139.00 Overflow cm3/10s: (55.60...139.00) quantity Mech. shutoff: Mech. Abstellung:

Delivery-quant. and breakaway char.:

1st speed 1/min: 1100

Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00)

Shutoff

electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 375

Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 375

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 9.00...13.00

1000s.: (6.00...16.00)

Dispersion cm3/: 5.5 1000s.: (7.0)

2nd speed 1/min: 500

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 0.00...4.00

1000s.: (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 280

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 80.00...140.00

1000s.: (80.00...140.00)

2nd speed 1/min: 440

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 50.00...80.00

1000s.: (50.00...80.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 80.00...140.00

1000s.: (80.00...140.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: -

KF mm: 5.0...5.4 MS mm: 1.0...1.4 Ya mm: 34.8...38.8

G19

Yb mm: 42.0...47.6

Remarks:

: C.D.C. # 390 4727

Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut (46)

Note inst. in remarks column

Test scheet : CUM

Edition : 10.06.92 replaces : 02.02.89 Calibrating oil : ISO-4113

Injection pump : VE6/12F105DR225-19

Type number : 0 460 426 127

Customer Part-No. :

Customer—specific information Customer : CUMMINS/GB

Engine : 68T-5.9 IND.

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. *(

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 027

Opening |

Pressure bar: 250.00...253.00

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00

x Length

mm: 840

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke mm: 1.5

mm: +-0.02(0.06)

Outlet : D

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 750

Setting value mm: 3.40...3.80

Shutoff

electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 750

Setting value bar: 3.70...4.30

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 750

Del. quantity cm3/

1000s.: 73.00...74.00

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 4.0 1000s.: (4.5)

Low-idle speed regulation

Speed 1/min: 375

Del. quantity cm3/

1000s.: 8.00...14.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

Speed 1/min: 1100

Del. quantity cm3/

1000\$.: 52.00...58.00

Shutoff

electromagnet Volt: 24

Start:

Speed 1/min: 100

Del. quantity cm3/: 60.00...120.00

mind 1000s.: 60.00

Shutoff

electromagnet Volt: 24

Inspection pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1050

TD travel mm: 4.90...5.70 mm: (4.60...6.00)

Shutoff

electromagnet Volt: 24 3rd speed 1/min: 750

TD travel mm: 3.40...3.80 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 15.00...45.00 10005.: (15.00...45.00) mm: (2.90...4.30) Shutoff electromagnet Volt: 24 4th speed 1/min: 500 1/min: 1050 9th speed mm: 1,20...2.00 TD travel Shutoff electromagnet Volt: 24
Del. quantity cm3/: 68.50...71.50
1000S.: (67.00...73.00)
10th speed 1/min: 900 mm: (0.90...2.30) Shutoff electromagnet Volt: 24 Supply-pump pressure characteristic: Shutoff electromagnet Volt: 24
Del. quantity cm3/: 71.00...74.00
1000s.: (69.00...76.00)
12th speed 1/min: 750 1st speed 1/min: 500 Supply-pump pressure bar: 2.60...3.20 12th speed Shutoff Shutoff electromagnet Volt: 24 2nd speed 1/min: 750 electromagnet Volt: 24 Del. quyntity cm3/: 73.00...74.00 Supply-pump 1000s.: (70.50...76.50) bar: 3.70...4.30 1/min: 500 pressure 20th speed Shutoff Shutoff electromagnet Volt: 24 Del. quantity cm3/: 59.00...67.00 1000s.: (57.00...69.00) electromagnet Volt: 24 1/min: 1050 3rd speed Supply-pump bar: 4.90...5.50 pressure Shutoff Mech. shutoff: electromagnet Volt: 24 Mech. Abstellung: Overlow quantity at overflow valve: 1st speed 1/min: 1050 Del. quantity cm3/: 0.00...3.00 1/min: 500 1st speed 1000s.: (0.00...3.00) Shutoff Shutoff electromagnet Volt: 24 electromagnet volt: 24 : 41.70...83.40 Overflow cm3/10s: (41.70...83.40) 1/min: 1050 quantity Electr. shutoff: 2nd speed Shutoff 1/min: 375 1st speed electromagnet Volt: 24 Del. quantity cm3/: 0.00...3.00 : 55.60...139.00 1000s.: (0.00...3.00) Overflow quantity cm3/10s: (55.60...139.00) Idle delivery: Delivery-quant. and breakaway char.: 1/min: 375 1st speed Shutoff 1/min: 1200 2nd speed electromagnet Volt: 24 Shutoff Del. quantity cm3/: 8.00...14.00 1000s.: (6.00...16.00) cm3/: 5.5 1000s.: (7.0) Dispersion 1/min: 1170 1/min: 450 2nd speed 3rd speed Shutoff Shutoff electromagnet Volt: 24 electromagnet Volt: 24 Del. quantity cm3/: 0.00...15.00 1000s.: (0.00...15.00) Del. quantity cm3/: 0.00...4.00 1000s.: (0.00...4.00) 5th speed 1/min: 1100 Shutoff Automatic starting fuel delivery: 1st speed 1/min: 130 Shutoff electromagnet Volt: 24

Del. quantity cm3/: 60.00...120.00 1000s.: (60.00...120.00)

2nd speed 1/min: 240

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 30.00...60.00 1000s.: (30.00...60.00)

1/min: 100 4th speed

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 60.00...120.00 1000s.: (60.00...120.00)

Shutoff electromagnet:

Cut-in

: 20.0 : 24.0 min voltage Rated voltage

Mounting and assembly dimensions:

Designation

K nm: -

KF mm: 5.0...5.4 MS mm: 0.8...1.2 SVS max. mm: 2.2

mm: 34.8...38.8 Ya

nm: 40.7...46.3 ďY

Remarks:

: C.D.C. # 391 0252

Note inst. in remarks column

Test scheet

Edition : 10.06.92 replaces : 02.02.89

Calibrating oil : ISO-4113

: VE6/12F1050R225-20 Injection pump

: 0 460 426 128 Type number

Customer Part-No. :

Customer-specific information

Customer

Engine : 6 BT -5.9 IND.

TEST BENCH REQUIREMENTS

Calibrating-oil

return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly

: 1 688 901 027

Opening

Pressure bar: 250.00...253.00

Perforated plate

diameter

mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00

x Length

mm: 840

Start of delivery

Prestroke mm: 0.3

(from BDC): +0.02(0.04)

Start of delivery block

Piston stroke mm: 1.5

mm: +-0.02(0.06)

Outlet

Injection-pump setting values

Test specifications in parentheses

Timing-device travel

Speed 1/min: 750

Setting value mm: 3.40...3.80

Shutoff

electromagnet Volt: 24

Supply-pump pressure

1/min: 750 Speed

Setting value bar: 3.50...4.10

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

1/min: 750 Speed

Del. quantity cm3/

1000s.: 64.50...65.50

Shutoff

electromagnet Volt: 24 cm3/: 4.0 Dispersion

1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 375

Del. quantity cm3/ 1000s.: 10.00...12.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

1/min: 1100 Speed

Del. quantity cm3/

1000s.: 46.00...52.00

Start:

1/min: 100

Del. quantity cm3/: 70.00...120.00 mind 1000s.: 70.00

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1050

mm: 5.00...5.80 TD travel

mm: (4.70...6.10)

Shutoff

electromagnet Volt: 24
3rd speed 1/min: 750
TD travel mm: 3.40...3.80

mm: (2.90...4.30)

Del. quantity cm3/: 46.00...52.00 1000s.: (43.00...55.00) Shutoff electromagnet Volt: 24 1/min: 500 4th speed 1/min: 1050 9th speed mm: 1.50...2.30 TD travel Shutoff mm: (1.20...2.60) electromagnet Volt: 24 Del. quantity cm3/: 60.50...63.50 1000s.: (59.00...65.00) 10th speed 1/min: 900 Shutoff electromagnet Volt: 24 Supply-pump pressure characteristic: Shutoff electromagnet Volt: 24 Del. quantity cm3/: 62.00...65.00 1000S.: (60.00...67.00) 12th speed 1/min: 750 1/min: 500 1st speed Supply-pump bar: 2.40...3.00 pressure Shutoff Shutoff electromagnet Volt: 24 2nd speed 1/min: 750 electromagnet Volt: 24 Del. quyntity cm3/: 64.50...65.50 1000s.: (62.00...68.00) 2nd speed Supply-pump bar: 3.50...4.10 pressure Shutoff electromagnet Volt: 24 20th speed 1/min: 500 Shutoff electromagnet Volt: 24 1/min: 1050 3rd speed Shutoff Supply-pump electromagnet Volt: 24 bar: 4.60...5.20 Del. quantity cm3/: 62.50...70.50 1000s.: pressure Shutoff electromagnet Volt: 24 Mech. shutoff: Overlow quantity at overflow valve: Mech. Abstellung: 1st speed 1/min: 500 1/min: 1050 1st speed Shutoff Del. quantity cm3/: 0.00...3.00 electromagnet Volt: 24 1000s.: (0.00...3.00) : 41.70...83.40 Overflow Shutoff cm3/10s: (41.70...83.40) 1/min: 1050 quantity electromagnet volt: 24 2nd speed Shutoff Electr. shutoif: electromagnet Volt: 24 : 55.60...139.00 1/min: 375 Overflow 1st speed Del. quantity cm3/: 0.00...3.00 cm3/10s: (55.60...139.00) quantity 1000s.: (0.00...3.00) Delivery-quant. and breakaway char.: Idle delivery: 1/min: 1250 2nd speed 1st speed 1/min: 375 Shutoff Shutoff electromagnet Volt: 24
Del. quantity cm3/: 10.00...12.00
1000s.: (6.00...16.00)
Dispersion cm3/: 5.5 electromagnet Volt: 24
Del. quantity cm3/: 0.00...3.00
1000s.: (0.00...3.00) 1/min: 1160 3rd speed Shutoff 1000s.: (7.0) 1/min: 500 electromagnet Volt: 24 2nd speed Del. quantity cm3/: 0.00...15.00 1000s.: (0.00...15.00) Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.00...4.00 1000s.: (0.00...4.00) 4th speed 1/min: 1130 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 15.00...55.00 1000s.: (15.00...55.00) 5th speed 1/min: 1100 Automatic starting fuel delivery: 1/min: 130 1st speed Shutoff Shutoff electromagnet Volt: 24 electromagnet Volt: 24

Del. quantity cm3/: 70.00...120.00

1000s.: (70.00...120.00)

2nd speed 1/min: 350

Shutoff

electromagnet Volt: 24
Del. quantity cm3/: 30.00...70.00
1000s.: (30.00...70.00)

1/min: 100 4th speed

Shutoff

electromagnet Volt: 24
Del. quantity cm3/: 70.00...120.00
1000s.: (70.00...120.00)

Shutoff electromagnet:

Cut-in

min voltage : 20.0 Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K mm: -

mm: 5.0...5.4 KF MS mm: 1.2...1.6 mm: 34.8...38.8 Ya Yb mm: 39.9...45.5

Remarks:

: C.D.C. # 390 8208

Note inst, in remarks column

Test scheet : CUM

Edition : 10.06.92 replaces : 11.07.89 Calibrating oil : ISO-4113

Injection pump : VE6/12F1050R225-18 Type number : 0 460 426 129

Customer Part-No. :

Customer-specific information

Customer : CDC

Engine : 68T- 5.9 IND.

TEST BENCH REQUIREMENTS

Calibrating oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 027

Openina :

Pressure bar: 250.00...253.00

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke mm: 1.5

mn: +0.02(0.06)

Outlet : D

Injection-pump setting values Test specifications in parentheses

fiming-device travel

Speed 1/min: 750

Setting value mm: 3.40...3.80

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 750

Setting value bar: 3.70...4.30

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 750

Del. quantity cm3/

1000s.: 75.00...76.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0 1000s.: (4.5)

Low-idle speed regulation

Speed 1/min: 375

Del. quantity cm3/

1000s.: 10.00...12.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

Speed 1/min: 1100

Del. quantity cm3/

1000s.: 52.00...58.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 60.00...120.00

mind 1000s.: 60.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1050

TD travel mm: 5.00...5.80 mm: (4.70...6.10)

mm: (4.70...0

Shutoff

electromagnet Volt: 12 3rd speed 1/min: 750

TD travel mm: 3.40.		Shutoff
mm: (2.90)	4.30) +	electromagnet Volt: 12
Shutoff	+	Del. quantity cm3/: 15.0045.00
electromagnet Volt: 12	+	1000\$.: (15.0045.00)
4th speed 1/min: 500	+	9th speed 1/min: 1050
TD travel mm: 1.30.		Shutoff
mm: (1.00)	2.40) +	electromagnet Volt: 12
Shutoff	+	Del. quantity cm3/: 69.5072.50
electromagnet Volt: 12	+	1000s.: (68.0074.00)
	+	10th speed 1/min: 900
Supply-pump pressure chara	acteristic: \downarrow	Shutoff
	+	electromagnet Volt: 12
1st speed 1/min: 500]	Del. quantity cm3/: 72.5075.50
Supply-pump	+	1000s.: (70.5077.50)
pressure bar: 2.60.	3.20	12th speed 1/min: 750
Shutoff	1	Shutoff
electromagnet Volt: 12	1	electromagnet Volt: 12
2nd speed 1/min: 750	1	Del. quyntity cm3/: 75.0076.00
Supply-pump	1	1000s.: (72.5078,50)
pressure bar: 3.70.	4.30	20th speed 1/min: 500
Shutoff	1	Shutoff
electromagnet Volt: 12	1	electromagnet Volt: 12
3rd speed 1/min: 1050	\mathbf{I}	Del. quantity cm3/: 61.5069.50
Supply-pump	Ţ	1000s.: (59.5071.50)
pressure bar: 4.90.	5 50 Î	100001, (7), 70, 111, 100,
Shutoff	···) ······	Mech. shutoff:
electromagnet Volt: 12	T	Mech. Abstellung:
etectionagnet vott. 12	Ť	mech. Musterlang.
Overlow quantity at overf	lou valve:	1st speed 1/min: 1050
over tow quarterty at over the	tow valve.	Del. quantity cm3/: 0.003.00
1st speed 1/min: 500	†	1000c . (0.00 . 7.00)
	†	1000s.: (0.003.00)
Shutoff	†	Shutoff
electromagnet Volt: 12	97 /0	electromagnet volt: 12
Overflow : 41.70	63.40	man to the back of the
quaritity cm3/10s: (41.76	J55.4U) +	Electr. shutoff:
2nd speed 1/min: 1050	†	A . I A I I Springer
Shutoff	+	1st speed 1/min: 375
electromagnet Volt: 12	t	Del. quantity cm3/: 0.003.00
Overflow : 55.60	139.00	1000s.: (0.003.00)
quantity cm3/10s: (55.6)	J139.00) †	
	+	Idle delivery:
Delivery-quant. and break	away char.: +	
	+	1st speed 1/min: 375
	+	Shutoff
2nd speed 1/min: 1200	+	electromagnet Volt: 12
Shutoff	+	Del. quantity cm3/: 10.0012.00
electromagnet Volt: 12	+	1000s.: (6.0016.00)
Del. quantity cm3/: 0.00.		Dispersion cm3/: 5.5
1000s.: (0.00	3.00) +	1000s.: (7.0)
3rd speed 1/min: 1170	+	2nd speed 1/min: 450
Shutoff	+	Shutoff
electromagnet Volt: 12	+	electromagnet Volt: 12
Del. quantity cm3/: 0.00.		Del. quantity cm3/: 0.004.00
1000s.: (0.00		1000s.: (0.004.00)
5th speed 1/min: 1100	+	
Shutoff	1	Automatic starting fuel delivery:
electromagnet Volt: 12	1	Transfer transfer grade desired y
Del. quantity cm3/: 52.00	58.00	1st speed 1/min: 130
10005.: (49.00		Shutoff
8th speed 1/min: 1130	<u> </u>	electromagnet Volt: 12
	₹	CECONOMICS FOR THE

Del. quantity cm3/: 60.00...120.00

1000s.: (60.00...120.00)

2nd speed 1/min: 240

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 30.00...60.00 1000s.: (30.00...60.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 60.00...120.00

1000s.: (60.00...120.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mn: -

KF mm: 5.0...5.4 MS mm: 0.8...1.2 mm: 34.8...38.8 mm: 40.7...46.3 Ya Yb

Remarks:

: C.D.C. # 390 8201

Note inst. in remarks column

Test scheet

Edition

: 10.06.92

Calibrating oil

: ISO-4113

Injection pump

: VE6/12F1100R225-22

Type number

: 0 460 426 132

Custoner Part-No. :

Customer-specific information

Customer

Engine

: 6BTA-590 IND.

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil

return temp.

with thermometer : 40...48

Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 027

Opening |

bar: 250.00...253.00 Pressure

Perforated-plate

diameter

mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00

x Wall thickness : 2.00

x Length

mm: 840

Start of delivery

Prestroke mm: 0.3

(from BDC): +0.02(0.04)

Start of delivery block

Piston stroke mm: 1.85

mm: $\leftarrow 0.02(0.06)$

Outlet

: D

Injection pump setting values

Test specifications in parentheses

Timing-device travel

1/min: 900 Speed

Setting value mm: 2.40...2.80

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 900 Speed

Setting value bar: 3.80...4.40

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed

1/min: 750

Del. quantity cm3/

1000s.: 92.00...93.00

Shutoff

electromagnet Volt: 12

Dispersion cm3/: 4.0

1000s.: (4.5)

Low-idle speed regulation

Speed

1/min: 400

Del. quantity cm3/

1000s.: 15.00...21.00

Shutoff

electromagnet Volt: 12

Full-load speed regulation

Speed

1/min: 1190

Del. quantity cm3/ 1000s.: 17.00...23.00

Start:

Speed 1/min: 100

Del. quantity cm3/: 70.00...130.00

mind 1000s.: 70.00

Shutoff

electromagnet Volt: 12

Inspection pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1100 2nd speed

mm: 3.00...3.80 TD travel

mm: (2.70...4.10)

Shutoff

electromagnet Volt: 12

1/min: 900 3rd speed

mm: 2.40...2.80 TD travel

mm: (1.90...3.30)

Shutoff

electromagnet Volt: 12 4th speed 1/min: 750

mm: 1.30...2.10 mm: (1.00...2.40) Del. quantity cm3/: 17.00...23.00 1000s.: (15.00...25.00) TD travel Shutoff. 1/min: 1100 9th speed electromagnet Volt: 12 Shutoff Supply-pump pressure characteristic: 1/min: 500 1st speed Supply-pump Shutoff electromagnet Volt: 12 Del. quantity cm3/: 80.50...83.50 1000s.: (78.50...85.50) pressure bar: 2.20...2.80 Shutoff electromagnet Volt: 12 1/min: 900 2nd speed Shutoff Supply-pump electromagnet Volt: 12 pressure bar: 3.80...4.40 12th speed 1/min: 750 Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 1/min: 1100 3rd speed Del. quyntity cm3/: 92.00...93.00 1000s.: (89.50...95.50) 1/min: 500 Supply-pump bar: 4.60...5.20 pressure 20th speed Shutoff Shutoff electromagnet Volt: 12 4th speed 1/min: 750 electromagnet Volt: 12 Del. quantity cm3/: 91.00...101.00 4th speed Supply-pump 1000s.: (90.00...102.00) bar: 3.20...3.80 pressure Shutoff Mech. shutoff: electromagnet Volt: 12 Mech. Abstellung: Overlow quantity at overflow valve: 1st speed 1/min: 1100 Del. quantity cm3/: 0.00...3.00 1/min: 500 1000s.: (0.00...3.00) 1st speed Shutoff Shutoff electromagnet Volt: 12 electromagnet volt: 12 : 41.70...83.40 quantity cm3/10s: (41.70...83.40) Electr. shutoff: 1/min: 1100 2nd speed Shutoff 1/min: 400 1st speed Del. quantity cm3/: 0.00...3.00 electromagnet Volt: 12 Overflow : 55.60...139.00 1000s.: (0.00...3.00) cm3/10s: (55.60...139.00) quantity Idle delivery: Delivery quant. and breakaway char.: 1st speed 1/min: 400 Shutoff 2nd speed 1/min: 1250 electromagnet Volt: 12 Del. quantity cm3/: 15.00...21.00 Shutoff 1000s.: (13.00...23.00) electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 2nd speed 1/min: 480 1000s.: (0.00...3.00) Shutoff 3rd speed 1/min: 1230 electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...15.00 1000s.: (0.00...15.00) Automatic starting fuel delivery: Shutoff electromagnet Volt: 12 1st speed 1/min: 130 5th speed 1/min: 1190 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00...130.00 Shutoff electromagnet Volt: 12 1000s.: (70.00...130.00)

1/min: 300 2nd speed

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 85.00...105.00 1000s.: -

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 70.00...130.00 1000s.: (70.00...130.00)

Mounting and assembly dimensions:

Designation

K mm: -

mm: 5.1...5.5 mm: 34.8...38.8 mm: 41.3...46.7 KF Ya Yb

Remarks:

: C.D.C. # 391 7010

Overflow restriction 0.55 mm - Part No.

Heavy-duty fuel-injection pump for DI-engines: only test using timingdevice-travel measuring device with metal jacket

Note inst. in remarks column

Test scheet

: MAN

Edition

: 15.06.92

replaces

: 06.11.89

Calibrating oil : ISO-4113

Injection pump

: VE6/12F1350R291-2

Type number

: 0 460 426 134

Customer Part-No. :

Customer-specific information

Customer

: MAN

Engine

: D 0826 GF LKW

TEST BENCH REQUIREMENTS

Calibrating-oil

return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly

: 1 688 901 020

Opening |

Pressure

bar: 172.00...175.00

Perforated plate

diameter

mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00

x Wall thickness : 2.00

x Length

mm: 840

Start of delivery

mm: 0.35 Prestroke

(from BDC): +-0.02(0.04)

Indicator setting

Piston stroke mm: 1.0

Outlet

: A

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed

1/min: 1000

H₀4

Setting value mm: 3.10...3.50

Shutoff

electromagnet Volt: 24

Supply-pump pressure

1/min: 1000 Speed

Setting value bar: 5.90...6.50

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

Speed

1/min: 1000

Del. quantity cm3/

1000s.: 99.00...100.00

Shutoff

electromagnet Volt: 24

Dispersion cm3/: 4.0

1000s.: (4.5)

Low-idle speed regulation

Speed

1/min: 300

Del. quantity cm3/

1000s.: 19.00...25.00

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 3.5 1000s.: (4.0)

Full-load speed regulation

Speed

1/min: 1400

Del. quantity cm3/

1000s.: 67.00...73.00

Shutoff

electromagnet Volt: 24

Start:

1/min: 100 Speed

Del. quantity cm3/: 70.00...130.00

mind 1000s.: 70.00

Shutoff

electromagnet Volt: 24

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1000 Speed

Charge press hPa: 24

Inj.-qty. cm3/

difference 1000s.: 44.00...52.00*

Shutoff

electromagnet Volt: 24

TD-travel dif.measurement

correttore anticipo iniezione (SV) 1/min: 1000

1.Speed

TD-travel Shutoff electromagnet Volt: 24
Overflow 55.60...139.00 mm: 0.90...1.10* difference Shutoff electromagnet Volt: 24 SP press. dif.measurement cm3/10s: (55.60...139.00) quantity pompa di mandata (FP) Delivery-quant. and breakaway char.: 1.Speed 1/min: 1000 Supply pump pressure 1/min: 1550 2nd speed difference bar: 0.10...0.30# Shutoff Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.00...3.00 electromagnet Volt: 24 1000s.: (0.00...3.00) Inspection-pump test specifications Test specifications in parentheses 1/min: 1440 3rd speed Shutoff electromagnet Volt: 24
Del. quantity cm3/: 20.00...60.00
1000s.: (20.00...60.00) Timing device characteristic: 1/min: 1490 2nd speed 1/min: 1100 4th speed mm: 4.00...4.80 TD travel Shutoff mm: (3.70...5.10) electromagnet Volt: 24 Del. quantity cm3/: 0.00...20.00 1000s.: (0.00...20.00) Shutoff electromagnet Volt: 24 3rd speed 1/min: 1000 1/min: 1400 5th speed mm: 3.10...3.50 TD travel Shutoff electromagnet Volt: 24 Del. quantity cm3/: 67.00...73.00 1000s.: (65.50...74.50) mm: (2.60...4.00) Shutoff electromagnet Volt: 24 4th speed 1/min: 800 1/min: 1350 9th speed TD travel mm: 0.90...1.70 Shutoff electromagnet Volt: 24
Del. quantity cm3/: 93.00...96.00
1000s.: (91.50...97.50) mm: (0.60...2.00) Shutoff electromagnet Volt: 24 1/min: 800 11th speed Supply-pump pressure characteristic: Shutoff electromagnet Volt: 24 Del. quantity cm3/: 96.00...100.00 1/min: 600 1st speed Supply-pump 1000s.: (94.50...101.50) 12th speed 1/min: 1000 bar: 3.90...4.50 pressure Shutoff Shutoff electromagnet Volt: 24 Del. quyntity cm3/: 99.00...100.00 1000s.: (97.00...102.00) electromagnet Volt: 24 2nd speed 1/min: 1000 Supply-pump pressure bar: 5.90...6.50 20th speed 1/min: 600 Shutoff Shutoff electromagnet Volt: 24 3rd speed 1/min: 1350 electromagnet Volt: 24 Del. quantity cm3/: 93.00...97.00 Supply-pump 1000s.: (91.50...98.50) pressure bar: 7.50...8.10 Shutoff Mech. shutoff: electromagnet Volt: 24 Mech. Abstellung: Overlow quantity at overflow valve: 1/min: 1350 1st speed Del. quantity cm3/: 0.00...3.00 1st speed 1/min: 600 1000s.: (0.00...3.00) Shutoff Shutoff electromagnet Volt: 24 electromagnet volt: 24 : 41.70...83.40 cm3/10s: (41.70...83.40) Overflow quantity Electr. shutoff: 2nd speed 1/min: 1350

1st speed 1/min: 300 Automatic starting fuel delivery: Del. quantity cm3/: 0.00...3.00 1600s.: (0.00...3.00) 1/min: 250 1st speed Shutoff Idle delivery: electromagnet Volt: 24 Del. quantity cm3/: 105.00...135.00 1000s.: (105.00...135.00) 1st speed 1/min: 300 Shutoff electromagnet Volt: 24 2nd speed 1/min: 400 Del. quantity cm3/: 19.00...25.00 Shutoff 1000s.: (17.00...27.00) cm3/: 3.5 electromagnet Volt: 24 Del. quantity cm3/: 90.00...110.00 1000s.: (90.00...110.00) Dispersion 1000s.: (4.0) 1/min: 450 4th speed Shutoff 1/min: 100 4th speed electromagnet Volt: 24 Shutoff Del. quantity cm3/: 0.00...4.00 1000s.: (0.00...4.00) electromagnet Volt: 24 Del. quantity cm3/: 70.00...130.00 1000s.: (70.00...130.00) Load-dependent start of delivery: Inj.-qty.dif.measurement: Shutoff electromagnet: 1/min: 1000 1st speed Cut-in min voltage Inj.-qty. cm3/ : 20.00..22.00# : 20.0 difference 1000S.: (20.00...22.00) Rated voltage : 24.0 Shutoff electromagnet Volt: 24 Mounting and assembly dimensions: 3rd speed 1/min: 1000 cm3/: 44.00..52.00* Inj.-uty. Designation difference 1000s.: (44.00...52.00) K min: -Shutoff KF mm: 5.1...5.5 electromagnet Volt: 24 MS mm: 0.8...1.2 5th speed 1/min: 1000 Inj.-qty. cm3/: 2.00...8.00' SVS max. mm: 4.2 mm: 17.0...19.0 XK difference 1000S.: (2.00...8.00) XL mm: 11.9...15.3 Shutoff Ya mm: 37.4...40.4 electromagnet Volt: 24 mm: 41.9...47.3 TD-travel dif.measurement: Remarks: correttore anticipo iniezione (SV): 1st speed 1/min: 1000 TD-travel : 0.90...1.10* difference mm: (0.90...1.10) Shutoff electromagnet Volt: 24 3rd speed 1/min: 1000 : 0.30...1.10 TD-travel difference mm: (0.30...1.10) Shutoff electromagnet Volt: 24 SP press.—dif.measurement: pompa di mandata (FP): 1st speed 1/min: 1000 Supply pump-: 0.10...0,30# pressure difference bar: (0.10...0.30) Shutoff electromagnet Volt: 24

Note inst. in remarks column

Test scheet

Edition : 10.06.92 replaces : 12.07.89 Calibrating oil : ISO-4113

Injection pump : VE6/12F1150R225-23

: 0 460 426 143 Type number

Customer Part-No. :

Customer-specific information

Customer

Engine : 6 BT -5.9 îND

TEST BENCH REQUIREMENTS

Calibrating-oil

return temp.

with thermometer: 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Openina .

ban: 250.00...253.00 Pressure

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840

x Length

Start of delivery Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke mm: 1.3

mm: +-0.02(0.06)

Outlet |

Injection-pump setting values Test specifications in parentheses

Timing device travel

1/min: 750 Speed

Setting value mm: 3.40...3.80

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 750 Speed

Setting value bar: 3.50...4.10

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 900

Del. quantity cm3/

1000s.: 71.50...72.50

Shutoff

electromagnet Volt: 12 cm3/: 4.0 Dispersion 1000s.: (4.5)

Full-load del. w/out charge press.:

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 375 Speed

Del. quantity cm3/

1000s.: 8.00...14.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

1/min: 1190 Speed

Del. quantity cm3/

1000s.: 50.00...56.00

Start:

Speed 1/min: 100

Del. quantity cm3/: 60.00...120.00

1000s.: 60.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100

mm: 5.50...6.30 TD travel

mm: (5.20...6.60)

Shutoff	Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
3rd speed 1/min: 750	Det. quantity cm3/: 50.0056.00
TD travel mm: 3.403.80 +	1000s.: (47.0059.00)
mm: (2.904.30)	9th speed 1/min: 1150
Shutoff	Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
4th speed 1/min: 500	Del. quantity cm3/: 66.5069.50
TD travel mm: 1.502.30	1000S.: (65.0071.00)
mm: (1.202.60)	Shutoff
Shutoff	electromagnet Volt: 12
electromagnet Volt: 12	12th speed 1/min: 900
+	Shutoff
Supply-pump pressure characteristic:	electromagnet Volt: 12
-	Del. quyntity cm3/: 71.5072.50
1st speed	1000s.: (69.0075.00)
Supply-pump +	Shutoff
pressure bar: 2.403.00	electromagnet Volt: 12
Shutoff	20th speed 1/min: 500
electromagnet Volt: 12	Shutoff
2nd speed 1/min: 750	
	electromagnet Volt: 12
Supply-pump +	Del. quantity cm3/: 56.5064.50
pressure bar: 3.504.10	10008.: -
Shutoff	
electromagnet Volt: 12	
3rd speed 1/min: 1100 +	Delivery-quant. and breakaway char.:
Supply-pump +	•
pressure bar: 4.805.40	Injqty.values,tempcompensated
Shutoff	temperatura
electromagnet Volt: 12	tomper atom a
1	Shutoff
Overlow quantity at overflow valve:	
over tow quantity at over flow valve.	electromagnet Volt: 12
1st speed 1/min: 500	March white C.
	Mech. shutoff:
Shutoff	Mech. Abstellung:
electromagnet Volt: 12	A
Overflow : 41.7083.40	1st speed 1/min: 1150
quantity cm3/10s: (41.7083.40)	Del. quantity cm3/: 0.003.00
2nd speed 1/min: 1150 +	1000s.: (0.003.00)
Shutoff	Shutoff
electromagnet Volt: 12	electromagnet volt: 12
Overflow : 55.60139.00	9 ,,000,,000,,000
quantity cm3/10s: (55.60139.00)	Electr. shutoff:
1	Ecott. Bilacott.
Delivery-quant. and breakaway char.:	1st speed 1/min: 375
T	Del. quantity cm3/: 0.003.00
Ţ	
Ch. A. EE	1000s.: (0.003.00)
Shutoff	- 11 4 4 A
electromagnet Volt: 12	Idle delivery:
2nd speed 1/min: 1300	
Shutoff	1st speed 1/min: 375
electromagnet Volt: 12	Shutoff
Del. quantity cm3/: 0.003.00	electromagnet Volt: 12
1000s.: (0.003.00)	Del. quantity cm3/: 8.0014.00
3rd speed 1/min: 1220	1000s.: (6.0016.00)
Shutoff	Dispersion cm3/: 5.5
electromagnet Volt: 12	1000s.: (7.0)
Del. quantity cm3/: 15.0055.00	2nd speed 1/min: 450
1000s.: (15.0055.00)	Shutoff
5th speed 1/min: 1190	
つい 8はたは 17月1(ロ: 127は - 十	electromagnet Volt: 12

HO8

Del. quantity cm3/: 0.00...4.00 1000s.: (0.00...4.00) Automatic starting fuel delivery: 1/min: 130 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00...130.00 1000s.: (70.00...130.00) 1/min: 240 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 20.00...60.00 1000s.: (20.00...60.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 60.00...120.00 1000s.: (60.00...120.00) Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation Κ mm: -KF mm: 5.0...5.4 mm: 0.8...1.2 mm: 20.2...22.2 MS ΧK XL mm: 11.5...14.9 mm: 35.8...37.8 mm: 41.7...47.1 Υa Yb Remarks: : C.D.C. # 391 8282 : C.D.C. # 391 6949

Note inst. in remarks column

Test scheet : CUM Edition : 04.06.92

replaces

Calibrating oil : ISO-4113

Injection pump : VE6/12F1100R381-8 : 0 460 426 200 Type number

Customer Part-No. :

Customer-specific information

Customer : CDC

: 6BT- 5.9 IND. Engine

KW: 64 Power 1/min: 2200 Speed

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temo.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 027

Openina

bar: 250.00...253.00 Pressure

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke mm: 1.5

mm: +-0.02(0.06)

Outlet

Injection-pump setting values

Test specifications in parentheses

Timing-device travel

Speed 1/min: 750

Setting value mm: 3.30...3.70

Shutoff

electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 750

Setting value bar: 3.50...4.10

Shucoff

electromagnet Volt: 24

Full-load del. w/out charge press.:

1/min: 1160 Speed

Del. quantity cm3/

1000s.: 49.50...50.50

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 4.0 1000s.: (4.5)

Low-idle speed regulation

Speed 1/min: 375

Del. quantity cm3/ 1000s.: 17.00...23.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

1/min: 1150 Speed

Del. quantity cm3/

1000s.: 33.50...39.50

Shutoff

electromagnet Volt: 24

Start:

1/min: 100 Speed

Del. quantity cm3/: 50.00...90.00

1000s.: 50.00 mind

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100

mm: 5.90...6.70 TD travel

mm: (5.60...7.00)

H10

Del. quantity cm3/: 33.50...39.50 1000S.: (30.50...42.50) Shutoff electromagnet Volt: 24
3rd speed 1/min: 750
TD travel mm: 3.30...3.70 12th speed 1/min: 1100 Shutoff electromagnet Volt: 24 Del. quyntity cm3/: 49.50...50.50 mm: (2.80...4.20) Shutoff electromagnet Volt: 24 4th speed 1/min: 500 1000s.: (47.00...53.00) 1/min: 750 15th speed mm: 1.50...2.30 TD travel Shutoff electromagnet Volt: 24
Del. quantity cm3/: 47.50...50.50
1000S:: (45.50...52.50)
17th speed 1/min: 600 mm: (1.20...2.60) Shutoff electromagnet Volt: 24 Supply-pump pressure characteristic: Shutoff electromagnet volt: 24 Del. quantity cm3/: 45.00...48.00 1st speed 1/min: 500 Supply-pump 1000H.: (43.00...50.00) pressure bar: 2.40...3.00 1/min: 500 20th speed Shutoff Shutoff electromagnet Volt: 24 Del. quantity cm3/: 32.50...40.50 1000s.: (30.50...42.50) electromagnet Volt: 24 1/min: 750 2nd speed Supply-pump bar: 3.50...4.10 pressure Shutoff Mech. shutoff: electromagnet Volt: 24 3rd speed 1/min: 1100 Mech. Abstellung: 3rd speed Supply-pump 1/min: 1100 1st speed pressure bar: 5.10...5.70 Del. quantity cm3/: 0.00...3.00 Shutoff 1000s.: (0.00...3.00) elactromagnet Volt: 24 Shutoff electromagnet volt: 24 Overlow quantity at overflow valve: Electr. shutoff: 1/min: 600 1st speed 1st speed 1/min: 375
Del. quantity cm3/: 0.00...3.00
1000s.: (0.00...3.00) Shutoff electromagnet Volt: 24 : 41.70...83.40 Overflow cm3/10s: (26.70...98.40) quantity Shutoff 2nd speed 1/min: 1100 electromagnet volt: -Shutoff electromagnet Volt: 24 Idle delivery: : 55.60...139.00 Overflow cm3/10s: (40.60...153.00) 1/min: 375 quantity 1st speed Shutoff electromagnet Volt: 24

Del. quantity cm3/: 17.00...23.00

1000s.: (15.00...25.00)

Dispersion cm3/: 5.5

1000s.: (7.0) Delivery quant. and breakaway char.: 1/min: 1200 2nd speed Shutoff electromagnet Volt: 24 1/min: 480 2nd speed Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.00...3.00 1/min: 1160 3rd speed Shutoff 1000s.: (0.00....3.00) electromagnet Volt: 24 Del. quantity cm3/: 15.00...45.00 Automatic starting fuel delivery: 1000s.: (15.00...45.00) 1/min: 1150 5th speed Shutoff 1/min: 375 2nd speed electromagnet Volt: 24

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 20.00...40.00 1000s.: (20.00...40.00)

4th speed 1/min: 100

Shutoff

electromagnet Veit: 24 Del. quantity cm3/: 50.00...90.00 1000s.: (50.00...90.00)

Shutoff electromagnet:

Cut-in

min voltage : 20.0 Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K KF mm: -

mm: 5.0...5.4

MS mm: 1.0...1.4

Remarks:

: C.D.C # 392 2411

Note inst. in remarks column

Test scheet

: 16.06.92 Edition : 19.07.88 replaces Calibrating oil : ISO-4113

: VE4/8F2300R308 Injection pump Type number : 0 460 484 015

Customer Part-No. :

Customer-specific information Customer : FIAT-AUTO

Encine : M708 EA 17.0 TIPO

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40...48 : 42...50 Electronically

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening |

bar: 130.00...133.00 Pressure

Test inj. tubing : motornah

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Start of delivery

Indicator setting Piston stroke mm: 1.0 Outlet : A

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1500 Speed

Setting value mm: 5.10...5.50

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1500 Speed

Setting value bar: 5.30...5.90

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1500 Speed

Del. quantity cm3/

1000s.: 29.10...30.10

Shutoff

electromagnet Volt: 12 cm3/: 2.5 Dispersion 1000s.: (3.0)

Low-idle speed regulation

1/min: 400 Speed Del. quantity cm3/

1000s.: 10.00...14.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000s.: (3.0)

Full-load speed regulation

1/min: 2500 Speed

Del. quantity cm3/ 1000s.: 22.00...28.00

Start:

Speed 1/min: 100 Del. quantity cm3/: 37.00...63.00 mind 1000S.: 37.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1500 Speed Charge press hPa: 12

cm3/Inj.-qty.

difference 1000s.: 6.00...12.00

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1/min: 1500 1.Speed

TD-travel

difference mm: 0.70...0.90

Shutoff

electromagnet Volt: 12

Inspection—pump test specifications Test specifications in parentheses

H13

Timing-device characteristic:	- Del. quantity cm3/: 0.001.60 - 1000s.: (0.001.60)
2rid speed 1/min: 2300	- 3rd speed 1/min: 2700
TD travel mm: 8.609.40	- Shutoff
mm: (8.309.70)	electromagnet Volt: 12
Shutoff	Del. quantity cm3/: 3.5011.50
electromagnet Volt: 12	- 1000s.: (2.5012.50)
3rd speed 1/min: 1500	
TD travel mm: 5.105.50	
mm: (4.606.00)	- Shutoff
Shutoff	electromagnet Volt: 12
	Del. quantity cm3/: 22.0028.00
electromagnet Volt: 12	1000s.: (19.0031.00)
4th speed 1/min: 800	- 9th speed 1/min: 2300
TD travel mm: 1.602.40	- Shutoff
mm: (1.102.90)	electromagnet Volt: 12
Shutoff -	- Del. quantity cm3/: 29.8032.20
electromagnet Volt: 12	1000\$.: (28.5033.50)
6th speed 1/min: 2000	12th speed 1/min: 1500
TD travel mn: 7.208.00	- Shutoff
mm: -	electromagnet Volt: 12
Shutoff	- Del. quyntity cm3/: 29.1030.10
electromagnet Volt: 12	- 1000s.: (27.3031.90)
_ _ _	- 15th speed 1/min: 1000
Supply-pump pressure characteristic:	- Shutoff
	- electromagnet Volt: 12
1st speed 1/min: 2300	- Del. quantity cm3/: 29.5031.90
Supply-pump	- 1000s.: (28.4033.00)
pressure bar: 7.207.80	- 20th speed 1/min: 600
Shutoff	- Shutoff
electromagnet Volt: 12	- electromagnet Volt: 12
2nd speed 1/min: 1500	- Del. quantity cm3/: 29.5032.50
Supply-pump	- 1000s.: (27.5034.50)
pressure bar: 5.305.90	-
Shutoff	- Mech. shutoff:
electromagnet Volt: 12	-
3rd speed 1/min: 600	- Electr. shutoff:
Supply-pump	
pressure bar: 3.103.70	- 1st speed 1/min: 400
Shutoff	- Del. quantity cm3/: 0.003.00
electromagnet Volt: 12	- 1000s.: (0.003.00)
	-
Overlow quantity at overflow valve:	Idle delivery:
over ton quarterly at over tem valever	Late detivery.
1st speed 1/min: 600	- 1st speed 1/min: 400
Shutoff	- Shutoff
electromagnet Volt: 12	- electromagnet Volt: 12
Overflow : 41.7083.40	- Del. quantity cm3/: 10.0014.00
quantity cm3/10s: (41.7083.40)	1000s.: (7.0017.00)
2nd speed 1/min: 2300	- Dispersion cm3/: 2.5
Shutoff	- 1000s.: (3.0)
electromagnet Volt: 12	
	2nd speed 1/min: 550
Overflow : 55.60139.00	- Shutoff
quantity cm3/10s: (55.60139.00)	electromagnet Volt: 12
Doldrom-grant and branks in the	Del. quantity cm3/: 0.003.00
Delivery-quant. and breakaway char.:	1000s.: (0.003.00)
1	- 3rd speed 1/min: 450
2nd chood 1 (min. 2000	- Shutoff
2nd speed 1/min: 2900	electromagnet Volt: 12
Shutoff	Pel. quantity cm3/: 0.006.00
electromagnet Volt: 12	- 1000s.: (-2.508.50)

Shutoff electromagnet Volt: 12 Load-dependent start of delivery: Inj.-qty.dif.measurement: 3rd speed 1/min: 1500 cm3/: 6.00...12.00 Inj.-qty. difference 1000s.: (5.00...13.00) Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correctore anticipo iniezione (SV): 1st speed 1/min: 1500 : 0.70...0.90 TD-travel mm: (0.70...0.90) difference Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1st speed 1/min: 300 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 43.00...53.00 1000s.: (43.00...53.00) 2nd speed 1/min: 400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 32.00...42.00 1000s.: (32.00...42.00) 1/min: 100 4th speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 37.00...63.00 1000s.: (37.00...63.00) Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation mm: 3.2...3.4 mm: 5.3...5.7 K **KF** MS mm: 1.6...2.0 Remarks: :

Note inst. in remarks column

Test scheet : PEU Edition : 03.06.92 replaces : 03.10.86 Calibrating oil : ISO-4113

: VE4/9F2075R126 Injection pump : 0 460 494 121 Type number

Customer Part-No. :

Customer-specific information

Customer : PSA

Engine : XD 3S

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil return temp.

with thermometer: 40...48 Electronically : 42...50

Inlet press., bar: 0.35

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening |

Pressure bar: 130.00...133.00

Test inj. tubing : motornah

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1500 Speed Charge press. hPa: 800 Setting value mm: 5.80...6.20

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1500 Charge press hPa: 800

Setting value par: 5.60...6.20

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1500 Speed Charge press. hPa: 800

Del. quantity cm3/ 1000s.: 53.50...54.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.0 1000s.: (3.0)

Full-load del. w/out charge press.:

1/min: 500 Speed

Del. quantity cm3/

1000s.: 40.00...41.00

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 350 Speed

Del. quantity cm3/

1000s.: 20.00...24.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.0 1000s.: (3.0)

Full-load speed regulation

1/min: 2300 Speed Charge press hPa: 800

Del. quantity cm3/

1000s.: 26.50...32.50

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 67.00...113.00

1000s.: 67.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000 Charge press hPa: 800

mm: 7.80...8.60 TD travel mm: (7.00...9.40)

Shutoff

electromagnet Volt: 12

H16

3rd speed 1/min: 1500 Charge press hPa: 800	† 1nd speed 1/min: 750 Charge-air pressure-setting
TD travel mm: 5.806.20 mm: (5.007.00)	+ point hPa: 300 + Shutoff
Shutoff	electromagnet Volt: 12
electromagnet Volt: 12	Del. quantity cm3/: 47.5048.50
4th speed 1/min: 750	+ 1000S.: (43.0053.00)
Charge press hPa: 800	+ 2nd speed 1/min: 2600
TD travel mm: 0.801.60	+ Charge press. hPa: 800
mm: (0.002.40)	+ Shutoff
Shutoff	+ electromagnet Volt: 12
electromagnet Volt: 12	+ Del. quantity cm3/: 0.003.00
5th speed 1/min: 1000	1000S.: (0.003.00)
Charge press. hPa: 800 TD travel mm: 2.503.30	+ 5th speed 1/min: 2300
mm: -	+ Charge press. hPa: 800 + Shutoff
Shutoff	electromagnet Volt: 12
electromagnet Volt: 12	Del. quantity cm3/: 26.5032.50
	10008.: (21.5037.50)
Supply-pump pressure characteristic:	+ 8th speed 1/min: 2200
4	+ Charge press. hPa: 800
1st speed	+ Shutoff
Charge press. hPa: 800	+ electromagnet Volt: 12
Supply-pump pressure bar: 3.404.00	+ Del. quantity cm3/: 40.5046.50
bar: -	10003: (35.5051.50) 9th speed 1/min: 2000
Shutoff	Charge press. hPa: 800
electromagnet Volt: 12	+ Shutoff
2nd speed 1/min: 1500	+ electromagnet Volt: 12
Charge press. hPa: 800	+ Del. quantity cm3/: 51.2053.20
Supply-pump	† 1000s.: (47.7056.70)
pressure bar: 5.606.20	+ 12th speed 1/min: 1500
bar: -	+ Charge press. hPa: 800
Shutoff electromagnet Volt: 12	+ Shutoff
3rd speed 1/min: 2000	+ electromagnet Volt: 12 + Del. quyntity cm3/: 53.5054.50
Charge press. hPa: 800	+ 1000s.: (50.0058.00)
Supply-pump	+ 18th speed 1/min: 500
pressure bar: 7.107.70	+ Shutoff
bar: -	+ electromagnet Volt: 12
Shutoff	+ Del. quantity cm3/: 40.0041.00
electromagnet Volt: 12	10008.: (35.5045.50)
Overlow quantity at overflow valve:	+ 20th speed 1/min: 1000 + Charge press. hPa: 800
over tow qualitity at over itow valve.	+ Shutoff
1st speed 1/min: 500	+ electromagnet Volt: 12
Shutoff	Del. quantity cm3/: 50.5053.50
electromagnet Volt: 12	+ 1000s.: (49.0055.00)
Overflow : 41.7083.40	+
quantity cm3/10s: (41.7083.40)	+ Mech. shutoff:
2nd speed 1/min: 2000	† Mech. Abstellung:
Charge press. hPa: 800	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Shutoff electromagnet Volt: 12	1st speed 1/min: 2075
Overflow : 55.60139.00	+ Del. quantity cm3/: 0.003.00 + 1000S.: (0.003.00)
quantity cm3/10s; (55.60139.00)	10000(0.00,5.00)
amminutely and the second seco	+ Electr. shutoff:
Delivery-quant. and breakaway char.:	+
	+ 1st speed 1/min: 350

Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Idle delivery: 1st speed 1/min: 350 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 20.00...24.00 1000s.: (14.00...30.00) cm3/: 2.0Dispersion 1000s.: (3.0) 1/min: 500 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...4.00 1000s:: (0.00...4.00) 3rd speed 1/min: 400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 8.00...12.00 1000s.: (2.00...18.00) Automatic starting fuel delivery: 1st speed 1/min: 230 Shutoff electromagnet Volt: 12 Del. quantity_cm3/: 60.00...100.00 1000s.: (60.00...100.00) 2nd speed 1/min: 330 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 20.00...60.00 1000s.: (20,00...60.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 67.00...113.00 1000s.: (67.00...113.00) Shutoff electromagnet: Cut-in min voltage : 10.0 : 12.0 Rated voltage Mounting and assembly dimensions: Designation mm: K1 K KF mm: 5.4...5.7 MS mm: 1.2...1.4 SVS max. mm: 4.6 mm: 20.2...22.2 XK XL mm: 9.7...13.1 mn: 19.1...23.1 Ya mm: 68.7...85.8 Yb

H18

Remarks:

Overflow restriction 0.55 mm - Part No.

Note inst. in remarks column

Test scheet : PEU
Edition : 03.06.92
replaces : 03.10.86
Calibrating oil : ISO-4113

Injection pump : VE4/9F2125R126-1 Type number : 0 460 494 123

Customer Part-No. :

Customer-specific information

Customer : PSA

Engine : XD 3S AUT.

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil return temp. °C

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 022

Opening

Pressure bar: 130.00...133.00

Test inj. tubing : motornah

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500 Charge press. hPa: 800

Setting value mm: 5.80...6.20

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500 Charge press hPa: 800

Setting value bar: 5.60...6.20

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500 Charge press. hPa: 800

Del. quantity cm3/

1000s.: 53.50...54.50

Shutoff electromagnet Volt: 12 Dispersion cm3/: 2.0

1000s.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500

Del. quantity cm3/

1000s.: 40.00...41.00

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 400

Del. quantity cm3/

1000s.: 17.00...21.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.0 1000s.: (3.0)

Full-load speed regulation

Speed 1/min: 2350 Charge press hPa: 800

Del. quantity cm3/

1000s.: 26.50...32.50

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 67.00...113.00

mind 1000s.: 67.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000 Charge press hPa: 800

TD travel mm: 7.80...8.60

mm: (7.00...9.40)

Shutoff

electromagnet Volt: 12

H19

3rd speed 1/min:	1500	+	Shutoff	
Charge press hPa:	800	+	electromagnet Volt:	12
	5.806.20	+	Del. quantity cm3/:	
	(5.007.00)	+		(43.0053.00)
Shutoff	40	+	3rd speed 1/min:	
electromagnet Volt:		†	Charge press. hPa:	800
4th speed 1/min:		†	Shutoff	40
Charge press hPa:		†	electromagnet Volt:	
	0.801.60 (0.002.40)	†	Del. quantity cm3/:	(0.003.00)
Shutoff	(0.002.40)	Ī	5th speed 1/min:	
electromagnet Volt:	12	I	Charge press. hPa:	
5th speed 1/min:	1000	I	Shutoff	900
Charge press. hPa:		-	electromagnet Volt:	12
TD travel mm:	2.503.30	1	Del. quantity cm3/:	
Shutoff		+	1000s.:	(21.5037.50)
electromagnet Volt:	12	+	8th speed 1/min:	2250
_		+	Charge press. hPa:	800
Supply-pump pressure	e characteristic:	+	Shutoff	
		+	electromagnet Volt:	
1st speed 1/min:		+	Del. quantity cm3/:	
Charge press. hPa:	800	+		(35.5051.50)
Supply-pump	7 (0 / 00	†	9th speed 1/min:	
pressure bar: Shutoff	3.404.00	†	Charge press. hPa:	800
electromagnet Volt:	10	T	Shutoff	12
2nd speed 1/min:		I	electromagnet Volt: Del. quantity cm3/:	16 51 20 57 20
Charge press. hPa:		Ι	1000s	(47.7056.70)
Supply-pump	500	Ι	10th speed 1/min:	
	5.606.2C	Ţ	Charge press. hPa:	
Shutoff	3.000.20	1	Shutoff	400
electromagnet Volt:	12	1	electromagnet Volt:	12
3rd speed 1/min:		1	Del. quantity cm3/:	
Charge press. hPa:		+		(49.0055.00)
Supply-pump		+	12th speed 1/min:	
	7.107.70	+	Charge press. hPa:	800
Shutoff	•	+	Shutoff	
electromagnet Volt:	12	+	electromagnet Volt:	12
0		+	Det. quyntity cm3/:	53.5054.50
Overlow quantity at	overflow valve:	†		(50.0058.00)
1st speed 1/min:	500	1	18th speed 1/min:	500
1st speed 1/min: Shutoff	200	T	Shutoff electromagnet Volt:	10
electromagnet Volt:	12	Ι	Del. quantity cm3/:	
	41.7083.40	I	1000s ·	(35.5045.50)
quantity cm3/10s:		1	, recon.	(3).3073.307
2nd speed 1/min:		1	Mech. shutoff:	
Charge press. hPa:		+	Mech. Abstellung:	
Shutoff		+		
electromagnet Volt:	12	+	1st speed 1/min:	2125
Overflow:	55.60139.00	+	Del. quantity cm3/:	0.003.00
quantity cm3/10s:	(55.60139.00)	+		(0.003.00)
		+		
Delivery-quant. and	breakaway char.:	+	Electr. shutoff:	
		†	4-4 41 ·	750
1nd speed 1/=2=:	750	†	1st speed 1/min:	
1nd speed 1/min:		Ī	Del. quantity cm3/:	(0.003.00)
Charge—air pressure point hPa:	~5et Cing - 300	Ī	10005.:	(0.003.00)
point iles:	JUU	Ι	Idle delivery:	
		T	rate activery:	

```
1st speed
              1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 17.00...21.00
             1000s.: (11.00...27.00)
               cm3/: 2.0
Dispersion
             1000s.: (3.0)
              1/min: 450
2nd speed
Shutoff
electromagnet Voit: 12
Del. quantity cm3/: 5.00...9.00
1000s.: (-1.00...15.00)
3rd speed 1/min: 550
3rd speed
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 0.00...4.00
             1000s.: (0.00...4.00)
Automatic starting fuel delivery:
1st speed
              1/min: 230
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 60.00...100.00
             1000s.: (60.00...100.00)
2nd speed
              1/min: 330
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 20.00...60.00
             1000s.: (20.00...60.00)
              1/min: 100
4th speed
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 67.00...113.00
             1000s.: (67.00...113.00)
Shutoff electromagnet:
Cut-in
min voltage
                   : 10.0
Rated voltage
                   : 12.0
Mounting and assembly dimensions:
Designation
K
                 mm: K1
KF
                 mm: 5.4...5.7
MS
                 mm: 1.2...1.4
SVS max.
                 mm: 4.6
                 mm: 20.2...22.2
XK
XL
                 mm: 9.4...12.8
                 mm: 19.1...23.1
Υa
                 mm: 66.5...83.1
Yb
Remarks:
```

Note inst. in remarks column

Test scheet : VWW : 03.06.92 Edition : 22.08.89 replaces Calibrating oil : ISO-4113

Injection pump : VE4/9F2400R138 : 0 460 494 131 Type number

Customer Part-No. :

Customer-specific information

Customer

: 086-1.6! (SG) Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer: 40...48 Electronically : 42...50

Inlet press., bar: 0.35

Calibrating nozzle-holder

assembly : 1 688 901 000

Opening

bar: 147.00...150.00 Pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1500 Speed

Setting value mm: 2.90...3.30

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1500 Speed

Setting value bar: 4.60...5.20

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1500 Speed

Del. quantity cm3/

1000s.: 31.70...32.70

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000s.: (3.0)

Low-idle speed regulation

Speed 1/min: 475 Del. quantity cm3/ 1000s.: 6.00...10.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.0 1000s.: (3.0)

Full-load speed regulation

1/min: 2600 Speed

Del. quantity cm3/

1000s.: 12.00...16.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 35.00...85.00 mind 1000s.: 35.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2400

TD travel mm: 6.10...6.90 mm: (5.80...7.20)

Shutoff

electromagnet Volt: 12 3rd speed 1/min: 1500

mm: 2.90...3.30 TD travel

mm: (2.40...3.80)

Shutoff

electromagnet Volt: 12 1/min: 1000 4th speed

mm: 1.30...2.10 TD travel mm: (1.00...2.40)

Shutoff

electromagnet Volt: 12

Supply-pump pressure characteristic:

H22

ist speed 1/min:	600	+	Shutott
Supply-pump	0.40 7.00	†	electromagnet Volt: 12
	2.403.GO	+	Shutoff
Sutoff		+	electromagnet volt: 12
electromagnet Volt:		+	20th speed 1/min: 600
2nd speed 1/min:	1500	+	Shutoff
Supply-pump		+	electromagnet Volt: 12
	4.605.20	1	Del. quantity cm3/: 21.5024.50
Shutoff	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1	10005.: (20.0026.00)
electromagnet Volt:	12	1	10000 (20.0020.00)
3rd speed 1/min:		\mathbf{I}	Mech. shutoff:
Supply-pump	2400	T	ricert. Shacoti.
	6.907.50	T	Clases shows ff.
pressure bar: Shutoff	0.707.30	Ť	Electr. shutoff:
	40	T	Ant mand A/ 175
electromagnet Volt:	12	†	1st speed 1/min: 475
O	- 611	†	Del. quantity cm3/: 0.003.00
Overlow quantity at	overflow valve:	†	1000s.: (0.003.00)
		+	
1st speed 1/min:	609	+	Idle delivery:
Shutoff		+	
electromagnet Volt:		+	1st speed 1/min: 475
Overflow:	41.7083.40	+	Shutoff
quantity cm3/10s:	(27.8097.30)	+	electromagnet Volt: 12
2nd speed 1/min:		1	Del. quantity cm3/: 6.0010.00
Shutoff		1	1000s.: (4.0012.00)
electromagnet Volt:	12	Ţ	Dispersion cm3/: 2.0
Overflow :	55.50138.90	1	10008.: (3.0)
quantity cm3/10s:		Ι	2nd speed 1/min: 650
qualitity clib/105.	(41.70,1)2.707	T	Shutoff
Dalisame and	l banasira, ar aban a	T	
Delivery-quant. and	Dreakaway Char.:	T	electromagnet Volt: 12
		†	Del. quantity cm3/: 0.007.60
7.1	0000	†	1000\$.: (0.007.60)
3rd speed 1/min:	2800	†	4th speed 1/min: 1200
Shutoff		+	Shutoff
electromagnet Volt:	12	+	electromagnet Volt: 12
Del. quantity cm3/:	0.003.03	+	Del. quantity cm3/: 0.005.00
	(0.003.00)	+	1000s.: (0.005.00)
5th speed 1/min:	2600	+	
Shutoff		1	Automatic starting fuel delivery:
electromagnet Volt:	12	4	The same of the sa
Del. quantity cm3/:	12.0016.03	1	1st speed 1/min: 400
	(10.0018.00)	1	Shutoff
8th speed 1/min:		1	electromagnet Volt: 12
Shutoff		1	Del. quantity cm3/: 18.0068.00
electromagnet Volt:	12	T	1000s.: (18.8068.00)
Del grantity on 7/1	16 En 29 En	Ţ	10002.1 (10.0000.00)
Del. quantity cm3/:	(17.5029.50)	Ť	2nd on and Africa FOO
Oth man and Manager	2/00	†	2nd speed 1/min: 500
9th speed 1/min:	2400	†	Shutoff
Shutoff	4.0	+	electromagnet Volt: 12
electromagnet Volt:		+	Del. quantity cm3/: 3.5023.50
Del. quantity cm3/:		+	1000s.: (3.503.50)
	(25.8030.20)	+	Shutoff
Shutoff		+	electromagnet Volt: 12
electromagnet Volt:		+	-
12th speed 1/min:	1500	+	Shutoff electromagnet:
Shutoff		+	· · · · · · · · · · · · · · · · · · ·
electromagnet Volt:	12	1	Cut-in
Del. quyntity cm3/:	31.7032.70		min voltage : 10.0
	(30.0034.40)	+	Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 5.15.5
KF	mm: 5.66.0
MS	mm: 1.21.6
SVS max.	mm: 2.3
FH	mm: 1.82.4
XK	mm: 17.019.0
XL	mm: 9.813.2
Ya	mm: 38.640.6
Yb	mm: 50.463.3

Remarks:

:
Overflow restriction 0.55 mm - Part No.
..303

Note inst. in remarks column

Test scheet : FIA

Edition : 04.06.92 : 16.12.86 replaces Calibrating oil : ISO-4113

Injection pump : VE4/9F2300R141 Type number : 0 460 494 132

Customer Part-No. :

Customer-specific information : FIAT-AUTO Customer

Engine : X8/43

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil °C return temp.

with thermometer: 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 022

Opening.

bar: 130.00...133.00 Pressure

Test inj. tubing : motornah

Outside diamater : 6.00 x Wall thickness : 2.00 x Length mm: 450

Injection-pump setting values Test specifications in parentheses

Timing device travel

Speed 1/min: 1500

Setting value mm: 4.30...4.70

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1500 Speed

Setting value bar: 5.60...6.20

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1500 Speed

Del. quantity cm3/ 1000s.: 29.20...30.20

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.0 1000s.: (3.0)

Low-idle speed regulation

1/min: 390

Del. quantity cm3/

1000s.: 9.00...13.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000s.: (2.5)

Full-load speed regulation

1/min: 2500

Del. quantity cm3/

1000s.: 11.00...17.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 55.00...95.00 mind 1000s.: 55.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min: 1500 Charge press hPa: 12

Inj.-aty. cm3/

difference 1000s.: 9.00...17.00

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV) 1.Speed 1/min: 1500

TD-travel

difference mm: 0.60...0.80

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing device characteristic:

2nd speed 1/min: 2300

H25

	7.107.90		Shutoff
	(6.808.20)	+	electromagnet Volt: 12
Shutoff '		+	Del. quantity cm3/: 20.5027.50 9th speed
electromagnet Volt:	12	+	9th speed 1/min: 2250
3rd speed 1/min:		+ :	Shutoff
	4.304.70		electromagnet Volt: 12
	(3.805.20)	+	Del. quantity cm3/: 30.9033.50
Shutoff		+	1000s.: (29.7034.79)
electromagnet Volt:	12	+	10th speed
4th speed 1/min:	800		Shutoff
TD travel mm:	1.702.50	+	electromagnet Volt: 12
	(1.402.80)	+	Del. quantity cm3/: 28.7031.70
Shutoff		+	1000s.: (27.7032.70)
electromagnet Volt:	12		12th speed
-			Shutoff
Supply pump pressure	e characteristic:	+	electromagnet Volt: 12
		+	Del. quyntity cm3/: 29.2030.20
1st speed 1/min:	2300	+	1000s.: (27.2032.20)
Supply-pump	- 10 - 50		20th speed 1/min: 600
•	7.408.00		Shutoff
Shutoff	40	+	electromagnet Volt: 12
electromagnet Volt:	12	+	Del. quantity cm3/: 29.5033.50
2nd speed 1/min:	1500	†	1000s.: (28.5034.50)
Supply-pump	F (0 (20	+	
	5.606.20	+	Mech. shutoff:
Shutoff	12	†	
electromagnet Volt:	12	†	Electr. shutoff:
3rd speed 1/min:	400	†	1 - h
Supply-pump	2.803.40	†	1st speed
pressure bar: Shutoff	2.803.40	T	Del. quantity cm3/: 0.003.00 1000s.: (6.003.00)
	12	T	10005.: (0.005.00)
electromagnet Volt:	12	I	Idle delivery:
Overlow quantity at	overflow valve:	I	ruce decivery.
over ton quarterly at	over team valver	1	1st speed 1/min: 390
1st speed 1/min:	600		Shutoff
Shutoff	030		electromagnet Volt: 12
electromagnet Volt:	12	1	Del. quantity cm3/: 9.0013.00
Overflow :	41.7083.40	1	10005.: (7.0015.00)
quantity cm3/10s:	(41.7083.40)	1	Dispersion cm3/: 2.5
2nd speed 1/min:		1	1000S.: (2.5)
Shutoff		+	2nd speed 1/min: 440
electromagnet Volt:	12		Shutoff
Overflow :	55.60139.00		electromagnet Volt: 12
quantity cm3/10s:		+	Del. quantity cm3/: 1.007.00
•		+	1000s.: (0.507.50)
Delivery-quant. and	breakaway char.:	+	4th speed 1/min: 500
		+	Shutoff
			electromagnet Volt: 12
3rd speed 1/min:	2600	+	Del. quantity cm3/: 0.003.00
Shutoff		+	1000s.: (0.003.00)
electromagnet Volt:		+	
Del. quantity cm3/:	2.5010.50		Load-dependent start of delivery:
1000s.:	(1.5011.50)	+	Inj.—qty.dif.measurement:
5th speed 1/min:	2500	†	
Shutoff	40		3rd speed
electromagnet Volt:			Inj.—aty. cm3/: 9.0017.00
Del. quantity cm3/:			difference 1000S.: (9.0017.00)
	(9.0019.00)	4	Shutoff
8th speed 1/min:	Z4UU	+	electromagnet Volt: 12

TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1500 : 0.60...0.80 TD-travel mm: (0.60...0.80) difference Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1st speed 1/min: 300 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 45.00...75.00 1000s.: (45.00...75.00) 2nd speed 1/min: 400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 26.00...46.00 1000s.: (26.00...46.00) Shutoff electromagnet: Cut-in : 10.0 min voltage : 12.0 Rated voltage Mounting and assembly dimensions: Designation mm: 3.1...3.4 mm: 5.7...6.0 K KF nm: 1.7...1.9 MS mm: 2.8 SVS max. mm: 20.2...22.2 XK XL mm: 10.3...13.7 mm: 37.2...39.2 Ya mm: 42.9...51.5 Yb Remarks: Overflow restriction 0.55 mm - Part No. ..303

Note inst. in remarks column

Test scheet : VWW

Edition : 04.06.92 replaces : 09.02.88

Calibrating oil : ISO-4113

Injection pump : VE4/9F2250R149 Type number : 0 460 494 138

Customer Part-No. :

Customer-specific information

Customer

Engine

: 36T-1.6L (33)

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-cil

•c return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 000

Opening

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00

x Length

mm: 840

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1500 Speed Charge press. hPa: 750

Setting value mm: 3.80...4.20

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500

Charge press hPa: 750 Setting value bar: 4.60...5.20

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500

Charge press. hPa: 750

Del. quantity cm3/ 1000s.: 43.50...44.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5

1000s.: (3.0)

Full-load del. w/out charge press.:

1/min: 600 Speed

Del. quantity cm3/

1000s.: 23.50...24.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 475 Speed

Del. quantity cm3/

1000s.: 6.00...10.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.0

1000s.: (3.0)

Full-load speed regulation

Speed 1/min: 2525 Charge press hPa: 750

Del. quantity cm3/

1000s.: 10.00...14.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 35.00...85.00 mind 1000s.: 35.00

mind

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2250 hPa: 750 Charge press

TD travel mm: 6.10...6.90

mm: (5.80...7.20)

Shutoff

electromagnet Volt: 12

H28

3rd speed 1/mir: 1500	† Shutoff
Charge press hPa: 750	+ electromagnet Volt: 12
TD travel mm: 3.804.20	+ Del. quantity cm3/: 0.003.00
mm: (3.304.70)	1000s.: (0.003.00)
Shutoff	+ 5th speed 1/min: 2525
electromagnet Volt: 12	+ Charge press. hPa: 750
4th speed 1/min: 1000	+ Shutoff
Charge press hPa: 750	
To travel mm: 1.802.60	+ electromagnet Volt: 12
	Del. quantity cm3/: 10.0014.00
mm: (1.502.90)	10005.: (8.0016.00)
Shutoff	+ 8th speed 1/min: 2425
electromagnet Volt: 12	† Charge press. hPa: 750
	+ Shutoff
Supply-pump pressure characteristic:	← electromagnet Volt: 12
	+ Del. quantity cm3/: 22.0032.00
1st speed 1/min: 600	+ 1000s.: (21.0033.00)
Charge press. hPa: 750	+ 9th speed 1/min: 2250
Supply-pump	+ Charge press. hPa: 750
pressure bar: 2.503.10	+ Shutoff
Shutoff	electromagnet Volt: 12
electromagnet Volt: 12	Del. quantity cm3/: 38.0040.00
2nd speed 1/min: 1500	10005:: (36.8041.20)
Charge press. hPa: 750	10th speed 1/min: 1500
Supply-pump	Change many http://doi.org/10.00
	Charge press. hPa: 750
	+ Shutoff
Shutoff	+ electromagnet Volt: 12
electromagnet Volt: 12	+ Del. quantity cm3/: 43.5044.50
3rd speed 1/min: 2250	† 1000\$.: (41.8046.20)
Charge press. hPa: 750	† 18th speed 1/min: 600
Supply-pump	+ Shutoff
pressure bar: 6.507.10	+ electromagnet Volt: 12
Shutoff	+ Del. quantity cm3/: 23.5024.50
electromagnet Volt: 12	+ 1000s.: (21.0027.00)
-	+ 20th speed 1/min: 600
Overlow quantity at overflow valve:	Charge press. hPa: 750
, , , , , , , , , , , , , , , , , , , ,	+ Shutoff
1st speed 1/min: 600	+ electromagnet Volt: 12
Shutoff	Del. quantity cm3/: 32.5035.50
electromagnet Volt: 12	1000s.: (31.0037.00)
Overflow : 41.7083.40	10003 (31.0037.00)
quantity cm3/10s: (27.8097.30)	T Mach shippers.
2nd speed 1/min: 2250	+ Mech. shutoff:
	The same of the same of
Charge press. hPa: 750	+ Electr. shutoff:
Shutoff	†
electromagnet Volt: 12	1st speed 1/min: 475
Overflow : 55.60139.00	+ Del. quantity cm3/: 0.003.00
quantity cm3/10s: (41.70152.90)	+ 1000s.: (0.003.00)
	+
Delivery-quant. and breakaway char.:	† Idle delivery:
	+
	+ 1st speed 1/min: 475
1nd speed 1/min: 1000	+ Shutoff
Charge-air pressure-setting	+ electromagnet Volt: 12
point hPa: 300	Del. quantity cm3/: 6.0010.00
Shutoff	10005:: (4.0012.00)
electromagnet Volt: 12	Dispersion cm3/: 2.0
Del. quantity cm3/: 33.5034.50	1000s.: (3.0)
1000S.: (31.0037.00)	
3rd speed 1/min: 2750	+ Shutoff
Charge press. hPa: 750	+ electromagnet Volt: 12

Del. quantity cm3/: 0.00...6.00 1000s.: (0.00...6.00) Automatic starting fuel delivery: 1st speed 1/min: 400

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 22.00...72.00 1000s.: (22.00...72.00)

2nd speed 1/min: 500 Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 10.00...30.00

1000s.: (10.00...30.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.2...3.4 mm: 5.6...6.0 mm: 1.1...1.5 mm: 3.8 KF MS SVS max. mm: 18.4...20.4 XK mm: 8.6...12.0 ΧL mm: 38.6...40.6 Ya mm: 50.4...63.3 Yb

Remarks:

Overflow restriction 0.55 mm - Part No. ..303

Note inst. in remarks column

Test scheet : REN : 04.06.92 Edition replaces : 22.08.89 : ISC-4113 Calibrating oil

Injection pump : VE4/9F2200R153 Type number : 0 460 494 141

Customer Part-No. :

Customer-specific information Customer : RNUR

: J8S - 709 Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil

°C: 130...133 inlet temp.

Calibrating-oil return temp.

with thermometer: 40...48 : 42...50 Electronically

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening

Pressure bar: 130...133

Test inj. tubing : motornah

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1400 Speed Charge press. hPa: 800

Setting value mm: 4.00...4.40

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1400 Speed hPa: 800 Charge press

Setting value bar: 5.10...5.70

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1400 Speed Charge press. hPa: 800 Del. quantity cm3/

1000s.: 47.20...48.20

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000s.: (3.0)

Full-load del. w/out charge press.:

1/min: 600 Speed

Del. quantity cm3/

1000s.: 37.00...38.00

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 425 Del. quantity cm3/ 1000s.: 7.00...11.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000s.: (3.0)

Full-load speed regulation

1/min: 2400 Speed Charge press hPa: 800

Del. quantity cm3/

1000s.: 23.00...29.00

Start:

1/min: 100

Del. quantity cm3/: 60.00...100.00

mind 1000s.: 60.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000 Charge press hPa: 800

TD travel mm: 6.20...7.00

mm: (6.20...7.00)

Shutoff	+	Charge-air pressure	-setting
electromagnet Volt: 12	+	point hPa:	200
3rd speed 1/min: 1400	t	LDA-stroke mm:	4.5
Charge press hPa: 800	+	Shutoff	
TD travel mm: 4.004.40	†	electromagnet Volt:	
mm: (3.504.90)	+	Del. quantity cm3/:	
Shutoff	+		(38.5044.50)
electromagnet Volt: 12	+	2nd speed 1/min:	
4th speed 1/min: 1000	†	Charge press. hPa:	800
Charge press hPa: 800	+	Shutoff	
TD travel mm: 1.902.70	+	electromagnet Volt:	
mm: (1.603.00)	+	Del. quantity cm3/:	0.003.00
Shutoff	+		(0.003.00)
electromagnet Volt: 12	+	3rd speed 1/min:	
óth speed 1/min: 1800	+	Charge press. hPa:	800
Charge press. hPa: 800	+	Shutoff	
TD travel mm: 5.706.50	+	electromagnet Volt:	
mm: (5.406.80)	+	Del. quantity cm3/:	2.5017.50
Shutoff	+	1000s.:	(2.5017.50)
electronagnet Volt: 12	+	5th speed 1/min:	2400
•	+	Charge press. hPa:	800
Supply-pump pressure characteristic:	+	Shutoff	
	+	electromagnet Volt:	12
1st speed 1/min: 600	+	Del. quantity cm3/:	
Supply-pump	1_		(22.0030.00)
pressure bar: 2.603.20	+	9th speed 1/min:	
Shutoff	1	Charge press. hPa:	
electromagnet Volt: 12	+	Shutoff	
2nd speed 1/min: 1400	+	electromagnet Volt:	12
Charge press. hPa: 800	1	Del. quantity cm3/:	
Supply-pump	1		(42.1046.70)
pressure bar: 5.105.70	1	12th speed 1/min:	
Shutoff	1	Charge press. hPa:	
electromagnet Volt: 12	1	Shutoff	000
3rd speed 1/min: 2000	1	electromagnet Volt:	12
Charge press. hPa: 800	1	Del. quyntity cm3/:	47 nn 48 nn
Supply-pump	1	10005	(45.2049.80)
pressure bar: 6.907.50	1	18th speed 1/min:	
Shutoff	1	Shutoff	400
electromagnet Volt: 12	1	electromagnet Volt:	12
	1	Del. quantity cm3/:	37 00 38 00
Overlow quantity at overflow valve:	1		(34.5040.50)
The continuous of the over the continuence	1	20th speed 1/min:	
1st speed 1/min: 600	1	Charge press. hPa:	
Shutoff	1	Shutoff	000
electromagnet Volt: 12	1	electromagnet Volt:	12
Overflow : 41.7083.40	1	Del. quantity cm3/:	
quantity cm3/10s: (41.7083.40)	1		(43.4049.40)
2nd speed 1/min: 2000	1	10000	(42.4047.407
Charge press. hPa: 800	1	Mech. shutoff:	
Shutoff	1	riceni. Shored i .	
electromagnet Volt: 12	1	Electr. shutoff:	
Overflow : 55.60139.00	1	Table : Shall :	
quantity cm3/10s: (55.60139.00)	1	1st speed 1/min:	425
quarter (10) 100: (25:00:::157:00)	1	Del. quantity cm3/:	
Delivery-quant. and breakaway char.:	1		(0.003.00)
DOCTORY GUILLE GIRG DI EGRAWAY CHIEF.	I	10.03.;	(0.005.00/
	I	Idle delivery:	
1nd speed 1/min: 700	I	Tare derivery.	
THE OPECO CENTRE FOO	I	1st speed 1/min:	425
	T	iscopeed i/min.	マレノ

Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.00...11.00 1000s.: (5.90...13.00) cm3/: 2.5 Dispersion 1000s.: (3.0) 2nd speed 1/min: 660 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 3rd speed 1/min: 520 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 3.00...7.00 1000s.: (1.00...9.00) Automatic starting fuel delivery: 1st speed 1/min: 180 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 40.00...100.00 1000s.: (40.00...100.00) 1/min: 300 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 20.00...40.00 1000s.: (20.00...40.00) Shutoff electromagnet: Cut-in min voltage : 10.0 : 12.0 Rated voltage Mounting and assembly dimensions: Designation K mm: 3.2...3.4 KF mm: 5.7...6.0 mm: 1.4...1.6 MS mm: 3.6 SVS max. mm: 17.0...19.0 XK mm: 10.3...13.7 ΧL mm: 38.8...42.8 mm: 34.1...43.9 Ya Yb Remarks: :

Note inst. in remarks column

Test scheet : VWW

Edition : 05.06.92 : 04.02.87 replaces Calibrating oil : ISO-4113

: VE4/9F2250R170 Injection pump Type number : 0 460 494 152

Customer Part-No. :

Customer-specific information

Customer

Engine

: 162T-1.61 Turbo

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery

Prestroke mm: 0.2

(from BDC): +-0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1500 Speed Charge press. hPa: 750

Setting value mm: 3.80...4.20

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500 Charge press hPa: 750

Setting value bar: 4.80...5.40

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500 Charge press. hPa: 750

Del. quantity cm3/ 1000s.: 42.50...43.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000s.: (3.0)

Full-load del. w/out charge press.:

1/min: 600

Del. quantity cm3/

1000s.: 25.00...26.00

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 415 Speed Charge press hPa: 750

Del. quantity cm3/

1006s.: 6.00...10.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.0 1000s.: (3.0)

Full-load speed regulation

1/min: 2525 Speed Charge press hPa: 750

Del. quantity cm3/

1000s.: 13.00...19.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed Charge press hPa: 750
Del. quantity cm3/: 35.00...85.00
mind 1000s.: 35.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2250

Charge press hPa:		ind speed 1/min: 900
	6.407.20	Charge-air pressure-setting
	(6.007.60)	point hPa: 300
Shutoff	+	Shutoff
electromagnet Volt:	12 +	electromagnet Volt: 12
3rd speed 1/min:	1500	Del. quantity cm3/: 36.0037.00
Charge press hPa:	750	10005.: (33.0039.00)
	3.804.20	3rd speed 1/min: 2650
	(3.204.80)	Charge press. hPa: 750
Shutoff	1	Shutoff
electromagnet Volt:	12 I	
4th speed 1/min:		electromagnet Volt: 12
		Del. quantity cm3/: 0.006.00
Charge press hPa:		10005.: (0.006.00)
	1.602.40	5th speed 1/min: 2525
	(1.202.80)	Charge press. hPa: 750
Shutoff	<u>.</u> †	Shutoff
electromagnet Volt:	12 +	electromagnet Volt: 12
	-	Del. quantity cm3/: 13.0019.00
Supply-pump pressure	characteristic: +	1000s.: (12.0020.00)
	+	8th speed 1/min: 2450
1st speed 1/min:	600	Charge press. hPa: 750
Charge press. hPa:	750	Shutoff
Supply-pump	1	electromagnet Volt: 12
	2.703.30	Del. quantity cm3/: 22.0032.00
	(2.503.50)	1000s.: (21.0033.00)
Shutoff	1	9th speed 1/min: 2250
electromagnet Volt:	12	
2nd speed 1/min:		Charge press. hPa: 750 Shutoff
Charge press. hPa:	730	electromagnet Volt: 12
Sribb (A-brimo	, m r (n †	Del. quantity cm3/: 35.0037.00
	4.805.40	1000s.: (33.8038.20)
	(4.605.60)	12th speed 1/min: 1500
Shutoff	†	Charge press. hPa: 750
electromagnet Volt:		Shutoff
3rd speed 1/min:		electromagnet Volt: 12
Charge press. hPa:	750 +	Del. quyntity cm3/: -
Supply-pump	+	1000s.: (40.8045.20)
	6.707.30	18th speed 1/min: 600
bar:	(6.507.50)	Shutoff
Shutoff	+	electromagnet Volt: 12 Del. quantity cm3/: 25.0026.00
electromagnet Volt:	12 +	Del. quantity cm3/: 25.0026.00
•	+	1000s.: (23.3027.70)
Overlow quantity at	overflow valve:	20th speed 1/min: 600
	1	Charge press. hPa: 750
1st speed 1/min:	600 +	Shutoff
Charge press. hPa:		electromagnet Volt: 12
Shutoff	1	Del. quantity cm3/: 35.5038.50
electromagnet Volt:	12	1000s.: (34.0040.00)
	41.7083.40	10003 (34.0040.00)
quantity cm3/10s:		Mech. shutoff:
2nd speed 1/min:	2250	raech. Shutoi i:
		Missey should
Charge press. hPa:	1 10 1	Electr. shutoff:
Shutoff	12	1-6
electromagnet Volt:		1st speed 1/min: 415
	55.60138.90	Del. quantity cm3/: 0.003.00
quantity cm3/10s:	(41.70152.9U) †	1000s.: (0.003.00)
*	, , ,	- W - 1 1 1
Delivery-quant. and	breakaway char.:	Idle delivery:
	†	1st speed 1/min: 415
	T	ist specu (/IIIII), 413

Shutoff electromagnet Volt: 12 Del. quantity cm3/: 6.00...10.00 1000s.: (4.00...12.00) 2nd speed 1/min: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Automatic starting fuel delivery: 1/min: 400 1st speed Charge press. hPa: 750 Shutoff electromagnet Voit: 12 Del. quantity cm3/: 29.50...79.50 1000s.: (29.50...79.50) 2nd speed 1/min: 500 Charge press. hPa: 750 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 17.50...37.50 1000s.: (17.50...37.50) 4th speed 1/min: 100 Charge press. hPa: 750 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 35.00...85.00 1000s.: (35.00...85.00) Shutoff electromagnet: Cut-in min voltage : 10.0 : 12.0 Rated voltage Mounting and assembly dimensions: Designation Κ mm: -KF mm: 5.6...6.0 MS mm: 1.1...1.5 SVS max. mm: 3.0 XK mm: 17.0...19.0 XL mm: 8.4...11.8 Remarks:

Note inst. in remarks column

Test scheet : REN

: 04.06.92 Edition : 22.08.89 replaces Calibrating oil : ISC-4113

: VE4/9F2200R153-1 Injection pump

Type number : 0 460 494 156

Customer Part-No. :

Customer-specific information

Customer : RNUR

: J8S - 701 CA Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil °C return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 022 assembly

Openina |

Pressure bar: 130...133

Test inj. tubing : motornah

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1400 Speed Charge press. hPa: 800

Setting value mm: 4.00...4.40

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1400

Charge press hPa: 800 Setting value par: 5.10...5.70

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1400 Charge press. hPa: 800

Del. quantity cm3/

1000s.: 47.00...48.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5

1000s.: (3.0)

Full-load del. w/out charge press.:

1/min: 600 Speed

Del. quantity cm3/

1000s.: 37.00...38.00

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 425 Speed

Del. quantity cm3/

1000s.: 7.00...11.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000s.: (3.0)

Full-load speed regulation

1/min: 2400 Speed Charge press hPa: 800

Del. quantity cm3/

1000s.: 23.00...29.00

Start:

1/min: 100 Speed

Del. quantity cm3/: 60.00...100.00

1000s.: 60.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000 hPa: 800 Charge press

TD travel mm: 6.20...7.00 mm: (6.20...7.00)

Shutoff

electromagnet Volt: 12 3rd speed 1/min: 1400 Charge press hPa: 800

TD travel Del. quantity cm3/: 41.00...42.00 1000s.: (38.50...44.50) mm: 4.00...4.40 mm: (3.50...4.90) 1/min: 2700 Shutoff 2nd speed electromagnet Volt: 12 4th speed 1/min: 1000 Charge press. hPa: 800 Shutoff Charge press hPa: 800 mm: 1.90...2.70 TD travel mm: (1.60...3.00) Shutoff electromagnet Volt: 12 6th speed 1/min: 1800 Charge press. hPa: 800 Charge press. hPa: 800 Shutoff electromagnet Volt: 12
Del. quantity cm3/: 2.50...17.50
10GOS.: (2.50...17.50)
5th speed 1/min: 2400 TD travel nm: 5.70...6.50 mm: (5.40...6.80) Shutoff electromagnet Volt: 12 Charge press. hPa: 800 Shutoff electromagnet Volt: 12
Del. quantity cm3/: 23.00...29.00
1000s.: (22.00...30.00)
9th speed 1/min: 2000 Supply-pump pressure characteristic: 1/min: 600 1st speed Supply-pump Charge press. hPa: 800 Shutoff pressure bar: 2.60...3.20 Shutoff electromagnet Volt: 12 electromagnet Volt: 12 Del. quantity cm3/: 43.40...45.40 1000s.: (42.10...46.70) 2nd speed 1/min: 1400 Charge press. hPa: 800 Supply-pump 1/min: 1400 12th speed pressure bar: 5.10...5.70 Charge press. hPa: 800 Shutoff Shutoff electromagnet Volt: 12 Del. quyntity cm3/: 47.00...48.00 1000s.: (45.20...49.80) electromagnet Volt: 12 1/min: 2000 3rd speed Charge press. hPa: 800 Supply-pump 1/min: 600 18th speed pressure bar: 6.90...7.50 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 37.00...38.00 Shutoff electromagnet Volt: 12 1000s.: (34.50...40.50) Overlow quantity at overflow valve: 1/min: 1000 20th speed Charge press. hPa: 800 1st speed Shutoff 1/min: 600 electromagnet Volt: 12 Del. quantity cm3/: 44.90...47.90 1000s.: (43.40...49.40) Shutoff electromagnet Volt: 12 : 41.70...83.40 cm3/10s: (41.70...83.40) 1/min: 2000 Overflow quantity 2nd speed Mech. shutoff: Charge press. hPa: 800 Shutoff Electr. shutoff: electromagnet Volt: 12 Overflow : 55.60...139.00 1st speed 1/min: 425 cm3/10s: (55.60...139.00) Del. quantity cm3/: 0.00...3.00 quantity 1000s.: (0.00...3.00) Delivery-quant. and breakaway char.: Idle delivery: 1nd speed 1/min: 700 1st speed 1/min: 425 Charge-air pressure-setting Shutoff point hPa: 200 electromagnet Volt: 12 Del. quantity cm3/: 7.00...11.00 1000s.: (5.00...13.00) LDA-stroke mm: 4.5 Shutoff electromagnet Volt: 12

Dispersion cm3/: 2.5 1000s.: (3.0) 2nd speed 1/min: 660 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 3rd speed 1/min: 520 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 3.00...7.00 1000s.: (1.00...9.00) Automatic starting fuel delivery: 1/min: 180 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 40.00...100.00 1000s.: (40.00...100.00) 2nd speed 1/min: 300 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 20.00...40.00 1000s.: (20.00...40.00) Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation mm: 3.2...3.4 mm: 5.7...6.0 K KF MS mm: 1.4...1.6 SVS max. mm: 3.6 mm: 17.0...19.0 XK XL mm: 10.3...13.7 Ya mm: 38.8...42.8 mm: 34.1...43.9 Yb Remarks:

Note inst. in remarks column

Test scheet

Edition : 11.06.92 replaces : 18.12.86 : ISO-4113 Calibrating oil

: VE4/9F2100R234 Injection pump Type number : 0 460 494 187

Customer Part-No. :

Customer-specific information Customer : FIAT-AUTO

Engine : X8/45 Regata TD

TEST BENCH REQUIREMENTS

Calibrating-oil

return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 022

Opening

Pressure bar: 130.00...133.00

Test inj. tubing : motornah

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1500 Speed Charge press. hPa: 1000

Setting value mm: 4.90...5.30

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1500 Speed Charge press hPa: 1000

Setting value bar: 5.60...6.20

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500 Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 45.50...46.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5

1000s.: (2.5)

Full-load del. w/out charge press.:

1/min: 800 Speed

Del. quantity cm3/

1000s.: 33.00...34.00

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 350 Speed

Del. quantity cm3/

1000s.: 16.00...20.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000s.: (2.5)

Full-load speed regulation

1/min: 2400 Speed Charge press hPa: 1000

Del. quantity cm3/

1000s.: 15.00...21.00

electromagnet Volt: 12

art:

1/min: 100 Speed

Del. quantity cm3/: 57.00...83.00

1000s.: 57.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1500 Speed Charge press hPa: 12

Inj. qty. cm3/

difference 1000s.: 8.00...16.00 #

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

4 - 4 4 4 4	
1. Speed 1/min: 1500	+ Supply-pump
TD-travel	+ pressure bar: 2.202.80
difference mm: 1.301.50 #	+ Shutoff
Shutoff	+ electromagnet Volt: 12
electromagnet Volt: 12	+
SP press. dif.measurement	Overlow quantity at overflow valve:
pompa di mandata (FP)	†
1. Speed 1/min: 1500	+ 1st speed 1/min: 600
Supply pump	+ Shutoff
pressure	+ electromagnet Volt: 12
difference bar: 0.100.30 a	+ Overflow : 41.7083.40
Shutoff	+ quantity cm3/10s: (41.7083.40)
electromagnet Volt: 12	+ 2nd speed 1/min: 2100
	Charge press. hPa: 1000
Inspection-pump test specifications	+ Shutoff
Test specifications in parentheses	+ electromagnet Volt: 12
	+ Overflow : 55.60139.00
Timing-device characteristic:	+ quantity cm3/10s: (55.60139.00)
	+
2nd speed 1/min: 2000	<pre>Delivery-quant. and breakaway char.:</pre>
Charge press hPa: 1000	+
TD travel mm: 7.408.20	+
mm: (7.108.50)	+ 1nd speed 1/min: 800
Shutoff	+ Charge-air pressure-setting
electromagnet Volt: 12	+ point hPa: 500
3rd speed 1/min: 1500	+ Shutoff
Charge press hPa: 1000	+ electromagnet Volt: 12
TD travel mm: 4.905.30	+ Del. quantity cm3/: 42.5043.50
mm: (4.605.60)	+ 1000s.: (40.5045.50)
Shutoff	+ 3rd speed 1/min: 2550
electromagnet Volt: 12	+ Charge press. hPa: 1000
4th speed 1/min: 800	+ Shutoff
Charge press hPa: 1000	+ electromagnet Volt: 12
TD travel mm: 1.001.80	+ Del. quantity cm3/: 1.008.00
mm: (0.702.10)	10005.: -
Shutoff	5th speed 1/min: 2400
electromagnet Volt: 12	+ Charge press. hPa: 1000
3	+ Shutoff
Supply-pump pressure characteristic:	+ electromagnet Volt: 12
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	+ Del. quantity cm3/: 15.0021.00
1st speed 1/min: 2000	+ 1000s.: (14.0022.00)
Charge press. hPa: 1000	+ 8th speed 1/min: 2300
Supply-pump	+ Charge press. hPa: 1000
pressure bar: 7.007.60	+ Shutoff
Shutoff	+ electromagnet Volt: 12
electromagnet Volt: 12	+ Del. quantity cm3/: 25.5032.50
2nd speed 1/min: 1500	+ 1000s.: -
Charge press. hPa: 1000	+ 9th speed 1/min: 2100
Supply-pump	+ Charge press. hPa: 1000
pressure bar: 5.606.20	+ Shutoff
Shutoff	+ electromagnet Volt: 12
electromagnet Volt: 12	Del. quantity cm3/: 44.5047.50
3rd speed 1/min: 800	10008:: (43.8048.20)
Charge press. hPa: 1000	+ 10th speed 1/min: 800
Supply-pump	+ Charge press. hPa: 1000
pressure bar: 3.504.10	+ Shutoff
Shutoff	+ electromagnet Volt: 12
electromagnet Volt: 12	Del. quantity cm3/: 47.5050.50
4th speed 1/min: 400	10008.: -
Charge press. hPa: 1000	12th speed 1/min: 1500
and he had the there	recti apedu 178111. Duu

Charge press. hPa: 1000 Shutoff	+ 1st speed 1/min: 1500 + TO-travel : 1.301.50 #
electromagnet Volt: 12 Del. quyntity cm3/: 45.5046.50	difference mm: (1.301.50) Shutoff
1000S.: (44.0048.00) 18th speed 1/min: 800 Shutoff	electromagnet Volt: 12 SP pressdif.measurement:
	pompa di mandata (FP):
electromagnet Volt: 12 Del. quantity cm3/: 33.0034.00 10008.: (31.0036.00)	+ 1st speed 1/min: 1500 + Supply pump-
20th speed 1/min: 600 Shutoff	+ pressure : 0.100.30 8 + difference bar: -
electromagnet Volt: 12 Del quantity cm3/: 32.8035.20 1000s.: -	+ Shutoff + electromagnet Volt: 12
Mech. shutoff:	Automatic starting fuel delivery:
	1st speed 1/min: 300
Electr. shutoff:	+ Shutoff
1st speed 1/min: 350	+ electromagnet Volt: 12 + Del. quantity cm3/: 55.0081.00
Del. quantity cm3/: 0.003.00	1000s.: (55.0081.00)
1000s.: (0.003.00)	2nd speed 1/min: 500
Idle delivery:	+ Shutoff
1st speed 1/min: 350	<pre>+ electromagnet Volt: 12 + Del. quantity cm3/: 20.0040.00</pre>
Shutoff	1000s.: (20,0040.00)
electromagnet Volt: 12	+ (1) 4(1) 400
Del. quantity cm3/: 16.0020.00 1000s.: (14.0022.00)	+ 4th speed 1/min: 100 + Shutoff
Dispersion cm3/: 2.5	+ electromagnet Volt: 12
1000\$.: (2.5)	Pel. quantity cm3/: 57.0083.00
2nd speed 1/min: 400 Shutoff	1000s.: (57.0083.00)
electromagnet Volt: 12	Shutoff electromagnet:
Del. quantity cm3/: 4.5010.50 1000s.: (3.0012.00)	+ - Cut-in
4th speed 1/min: 500	min voltage : 10.0
Shutoff	- Rated voltage : 12.0
electromagnet Volt: 12 Del. quantity cm3/: 0.003.00	† Mounting and assembly dimensions:
10008.: (0.003.00)	T rounting and assembly dimensions.
	Designation
Load-dependent start of delivery: Injqty.dif.measurement:	+ K mm: 3.23.4 + KF mm: 5.76.0
Tij. qty.urr.medsurement.	MS mm: 1.41.65
1st speed _1/min: 1500	+ XK mm: 17.019.0
Injqty. cm3/ : 5.007.00 & difference 1000S.: -	+ XL mm: 10.614.0
Shutoff	+ Ya mm: 37.239.2 + Yb mm: 45.253.8
electromagnet Volt: 12	+
3rd speed	Remarks:
difference 1000S:: (8.0016.00)	Į
Shutoff	+
electromagnet Volt: 12	‡
TD-travel dif.measurement:	+
correttore anticipo iniezione (SV):	+

Note inst. in remarks column

Test scheet : SOF

Edition : 02.06.92 : 16.01.89 replaces

Calibrating oil : ISO-4113

: VE4/9F2100R22-7 Injection pump Type number : 0 460 494 189

Customer Part-No. :

Customer-specific information : IVECO-SOFIM

Customer

: 8144-67-220

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil °C return temo.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press. bar: 0.35

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening

Engine

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Cutside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1800 Speed

Setting value mm: 7.60...8.00

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1800 Speed

Setting value bar: 6.30...6.90

Shutoff

electromagnet Volr: 12

Full-load del. with charge press.:

1/min: 2000

Del. quantity cm3/

1000s.: 37.50...38.50

Shutoff

electromagnet Volt: 12 cm3/: 2.5 Dispersion

1000s.: -

Low-idle speed regulation

1/min: 370

Del. quantity cm3/

10**0**0s.: 8.00...12.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.0

1000s.: -

Full-load speed regulation

1/min: 2350 Speed

Del. quantity cm3/

1000s.: 18.00... 26.00

Start:

1/min: 100 Speed

Del. quantity cm3/: 55.00...95.00

1000s.: 55.00

Shutoff

electromagnet Volt: 12

Inspection pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000

TD travel mm: 8.30...9.10

mn: (8.00...9.40)

Shutoff

electromagnet Volt: 12
3rd speed 1/min: 1800
TD travel mm: 7.60...8.00

mm: (7.10...8.50)

Shutoff

electromagnet Volt: 12

1/min: 600 4th speed

mm: 1.20...2.00 TD travel mm: (0.90...2.30)

Shutoff

electromagnet Volt: 12

Shutott	† Del. quantity cm3/: 43.5046.50
electromagnet Volt: 12	+ Shutoff
	+ electromagnet Volt: 12
Supply-pump pressure characteristic:	→ 12th speed 1/min: 2000
	+ Shutoff
1st speed 1/min: 600	+ electromagnet Volt: 12
Supply-pump	Del. quyntity cm3/: 37.5038.50
pressure bar: 3.203.80	+ 1000s.: (35.7040.30)
bar: -	- 20th speed 1/min: 600
Shutoff	Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
2nd speed 1/min: 1800	Del. quantity cm3/: 34.8038.80
Supply-pump	10008.: (33.8039.80)
pressure bar: 6.306.90	10003 (33.8039.80)
ban: -	Hech. shutoff:
Shutoff	T Mech. Shuloff:
	7
electromagnet Volt: 12 3rd speed 1/min: 2000	+ Electr. shutoff:
	104 00004 1/010 770
Supply-pump	1st speed 1/min: 370
pressure bar: 6.707.30	bel. quantity cm3/: 0.003.00
bar: -	† 1000s.: -
Shutoff	† · · ·
electromagnet Volt: 12	† Idle delivery:
	+
Overlow quantity at overflow valve:	+ 1st speed 1/min: 370
	+ Shutoff
1st speed 1/min: 600	+ electromagnet Volt: 12
Shutoff	+ Del. quantity cm3/: 8.0012.00
electromagnet Volt: 12	+ 1000s.: (6.0014.00)
Overflow : 41.0083.00	+ Dispersion cm3/: 3.0
quantity cm3/10s: (26.0098.00)	+ 1000s.: (3.0)
2nd speed 1/min: 2100	+ 2nd speed 1/min: 500
Shutoff	+ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
Overflow : 55.00138.00	+ Del. quantity cm3/: 0.003.00
quantity cm3/10s: (40.00153.00)	1000s.: -
4	+ 3rd speed 1/min: 420
Delivery-quant. and breakaway char.:	+ Shutoff
	+ electromagnet Volt: 12
	Del. quantity cm3/: 4.508.50
3rd speed 1/min: 2500	+ 1000s.: -
Shutoff	+ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
Del. quantity cm3/: 0.004.40	T etectionagnet vote. 12
1000s.: -	Load-dependent start of delivery:
Shutoff	Injqty.dif.measurement:
	Till. qty. all. measurement.
electromagnet Volt: 12 5th speed	1 1 1 m m m m 1 1 / m m 1 1 1 1 1 1 1 1
Shutoff	+ 1st speed 1/min: 1800
	+ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
Del. quantity cm3/: 18.0026.00	+ 2nd speed 1/min: 1800
1000S.: (16.0028.00)	+ 3rd speed 1/min: 1800
9th speed 1/min: 2100	+ Shutoff
Shutoff	+ electromagnet Volt: 12
electromagnet Volt: 12	+ 4th speed 1/min: 1800
Del. quantity cm3/: 36.7039.30	+ 5th speed 1/min: 1800
1000\$.: (35.7040.30)	†
10th speed 1/min: 1100	+ TD-travel dif.measurement:
Shutoff	<pre>† correttore anticipo iniezione (SV):</pre>
electromagnet volt: 12	+ 1st speed 1/min: 1800

```
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1800
              1/min: 1800
3rd speed
4th speed
              1/min: 1800
SP press.-dif.measurement:
pompa di mandata (FP):
1st speed
             1/min: 1800
Shutoff
electromagnet Volt: 12
              1/min: 1800
2nd speed
             1/min: 1800
1/min: 1800
3rd speed
4th speed
Automatic starting fuel delivery:
             1/min: 400
1st speed
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 37.00...67.00
             1000s.: (37.00...67.00)
             1/min: 480
2nd speed
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 20.00...40.00
             1000s.: (20.00...40.00)
             1/min: 100
4th speed
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 55.00...95.00
             1000s.: (55.00...95.00)
Shutoff electromagnet:
Cut-in
 min voltage
                   : 10.0
Rated voltage
                   : 12.0
Mounting and assembly dimensions:
Designation
K
                 mm: -
                 mm: 5.4...5.7
KF
MS
                 mm: 1.7...1.9
                 mm: 25...27
ХK
                 mm: 11.8...15.8
XŁ
                 mm: 37.9...39.9
Ya
                 mm: 43.3...49.7
Yb
Remarks:
Overflow restriction 0.55 mm - Part No.
..303
```

Note inst. in remarks column

Test scheet : VWW

: 12.06.92 Edition replaces : 17.07.87 Calibrating oil : ISO-4113

Injection pump : VE4/9F2250R254 : 0 460 494 200 Type number

Customer Part-No. :

Customer-specific information

Customer

Engine

: 086-1.6L(SG)

TEST BENCH REQUIREMENTS

Calibrating oil

return temp.

with thermometer: 40...48 Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 000

Opening

bar: 147.00...150.00 Pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250

Charge press. hPa: 500 Setting value mm: 2.10...2.50

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1250 Speed Charge press hPa: 500

Setting value bar: 4.90...5.50

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1000 Speed Charge press. hPa: 500

Del. quantity cm3/

1000s.: 28.00...29.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5

1000s.: (3.0)

Full-load del. w/out charge press.:

1/min: 1000 Speed

Del. quantity cm3/

1000s.: 24.50...25.50

Shutoff

electromagnet Volt: 12

Residual-Delivery Setting

Speed 1/min: 550

Del. quantity cm3/

1000s.: 2.50...3.50

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2475 Speed Charge press hPa: 500

Del. quantity cm3/

1000s.: 12.00...16.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 35.00...85.00

1000s.: 35.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1250 Speed Charge press hPa: 12

Inj.-qty. cm3/

difference 1000s.: 4.00...6.00*

Shutoff

electromagnet Volt: 12 SP press.-dif.measurement pompa di mandata (FP) 1.Speed 1/min: 1250

J18

: 41.70...83.40 cm3/10s: (27.80...97.30) 1/min: 2250 Supply pump Overflow pressure quantity difference bar: 0.10...0.30* 2nd speed Charge press. hPa: 500 Shutoff Shutoff' electromagnet Volt: 12 electromagnet Volt: 12 : 55.60...139.00 Inspection-pump test specifications Overflow Test specifications in parentheses cm3/10s: (41.70...152.90) quantity Timing-device characteristic: Delivery-quant. and breakaway char.: 1/min: 2250 hPa: 500 2nd speed Charge press 1nd speed 1/min: 1000 TD travel mm: 6.50...7.30 Charge-air pressure-setting mn: (6.20...7.60) point hPa: 150 Shutoff Shutoff electromagnet Volt: 12 3rd speed 1/min: 1250 electromagnet Volt: 12 Del. quantity cm3/: 26.00...27.00 1000s.: (23.50...29.50) 1/min: 2700 Charge press hPa: 500 TD travel mm: 2.10...2.50 3rd speed Charge press. hPa: 500 Shutoff mm: (1.60...3.00) Shutoff electromagnet Volt: 12 4th speed 1/min: 1000 Charge press hPa: 500 TD travel mm: 0.90...1.70 mm: (0.60...2.00) Charge press. hPa: 500 Shutoff Shutoff electromagnet Volt: 12
Del. quantity cm3/: 12.00...16.00
1000s.: (10.00...18.00)
8th speed 1/min: 2400 electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Charge press. hPa: 500 Supply-pump pressure characteristic: Shutoff electromagnet Volt: 12
Del. quantity cm3/: 16.00...26.00
1000S.: (15.00...27.00)
9th speed 1/min: 2250 1st speed 1/min: 600 Charge press. hPa: 500 Supply-pump pressure bar: 3.00...3.60 Charge press. hPa: 500 Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12
Del. quantity cm3/: 27.00...29.00
1000S.: (25.80...30.20)
10th speed 1/min: 1000
Charge press. hPa: 300 1/min: 1250 2nd speed Charge press. hPa: 500 Supply-pump bar: 4.90...5.50 pressure Shutoff electromagnet Volt: 12 Shutoff 3rd speed 1/min: 2250 electromagnet Volt: 12 Del. quantity cm3/: 28.00...29.00 Charge press. hPa: 500 1000s.: (26.30...30.70) Supply-pump 1/min: 1000 bar: 7.70...8.30 pressure 11th speed Charge press. hPa: 500 Shutoff Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 600 Charge press. hPa: 500 Shutoff Shutoff electromagnet Volt: 12 Del. quyntity cm3/: 24.50...25.50 1000s.: (22.00...28.00) electromagnet Volt: 12

Inj.-qty. cm3/ : 4.00...6.00* 14th speed 1/min: 600 Charge press. hPa: 500 difference 1000s.: -Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 22.00...25.00 1000s.: (20.50...26.50) electromagnet Volt: 12 3rd speed 1/min: 1250 Inj.-qty. cm3/: 6.00...10.00' difference 1000S:: (4.00...12.00) Mech. shutoff: Shutoff electromagnet Volt: 12 5th speed 1/min: 1250 Inj.-qty. cm3/: 2.00...8.00# Electr. shutoff: difference 1000s.: (2.00...8.00) 1st speed 1/min: 425 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet Volt: 12 2nd speed 1/min: 1250 Damper set qty.: TD-travel : 0.60...0.80 difference mm: (0.60...0.80) LFG-setting: Shutoff electromagnet Volt: 12
4th speed 1/min: 1250
TD-travel : 1.30...1.70#
difference mm: (1.00...2.00) solidale con carcassa: Idle delivery: 1/min: 375 1st speed Shutoff SP press.-dif.measurement: pompa di mandata (FP); 1/min: 1250 1st speed Supply pump-Shutoff pressure : 0.10...0.30* electromagnet Volt: 12 difference bar: -Del. quantity cm3/: 5.50...8.50 1000s.: (3.00...11.00) Dispersion cm3/: 2.0 1000s.: (3.0) Shutoff electromagnet Volt: 12 4th speed 1/min: 1250 Supply pumppressure : 0.70...1.10# bar: (0.50...1.30) High Idle: difference Shutoff 1/mi: 525 1st speed electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.00...9.00 1000s.: (4.00...12.00) Automatic starting fuel delivery: 1st speed 1/min: 180 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 35.00...85.00 1000s.: (35.00...85.00) Residual: 1/min: 550 1.Rotacao Shutoff electromagnet Volt: 12 Del. quantity cm3/: 2.50...3.50 1000s.: (1.00...5.00) 1/min: 380 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.00...30.00 1000s.: (10.00...30.00) 1/min: 500 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 3.20...5.20 1000s.: (1.70...6.70) 4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 35.00...85.00 1000s.: (35.00...85.00) Load-dependent start of delivery: Inj.-qty.dif.measurement: 1st speed 1/min: 1250 Shutoff electromagnet:

Cut-in min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

mm: 3.2...3.4 nm: 5.7...6.0 nm: 1.3..1.55 nm: 37.6...41.6 nm: 50.4...63.3 K KF MS Ya Yb

Remarks:

: :

Note inst. in remarks column

Test scheet : VWW

: 12.06.92 Edition replaces : 10.11.88 calibrating oil : ISO-4113

Injection pump : VE4/9F2250R270 Type number : 0 460 494 210

Customer Part-No. :

Customer-specific information

Customer

Engine

: 086-1.61 (SG)MJ87

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 000

Opening |

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Injection pump setting values Test specifications in parentheses

Timing device travel

1/min: 1250

Setting value mm: 2.10...2.50

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1250 Speed

Setting value bar: 4.00...4.60

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1000 Speed

Del. quantity cm3/

1000s.: 28.50...29.50

Shutoff

electromagnet Volt: 12 cm3/: 2.5 Dispersion 1000s.: (3.0)

Residual-Delivery Setting

Speed 1/min: 550

Del. quantity cm3/

1000s.: 2.50...3.50

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2475 Speed

Del. quantity cm3/

1000s.: 14.00...18.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 35.00...85.00 mind 1000s.: 35.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min: 1250 Charge press hPa: 12

cm3/Inj.-qty.

difference 1000s.: 6.00...12.00%

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1/min: 1250 1.Speed

TD-travel

difference mm: 0.60...0.80*

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2250

mm: 6.50...7.30 TD travel

mm: (6.20...7.60)

Del. quantity cm3/: 18.00...28.00 1000\$:: (17.00...29.00) Shutoff electromagnet Volt: 12
3rd speed 1/min: 1250
TD travel mm: 2.10...2.50
mm: (1.60...3.00) 9th speed 1/min: 2250 Shutoff Shutoff electromagnet Volt: 12 1/min: 1000 4th speed ma: 0.90...1.70 TD travel Shutoff mm: (0.60...2.00) Shutoff electromagnet Volt: 12 Shutoff Supply-pump pressure characteristic: electromagnet Volt: 12 Del. quantity cm3/: 22.00...25.00 1000s.: (20.50...26.50) 1st speed 1/min: 600 Supply-pump pressure bar: 2.10...2.70 Shutoff Mech. shutoff: electromagnet Vola: 12 1/min: 1250 2nd speed Electr. shutoff: Supply-pump pressure bar: 4.00...4.60 1st speed 1/min: 425 Del. quantity cm3/: 0.00...3.00 Shutoff electromagnet Volt: 12 1000s.: (0.00...3.00) 3rd speed 1/min: 2250 Supply-pump Damper set qty.: bar: 6.90...7.50 pressure Shutoff LFG-setting: solidale con carcassa: electromagnet Volt: 12 Idle delivery: Overlow quantity at overflow valve: 1st speed 1/min: 375 1st speed 1/min: 600 Shutoff Shutoff electromagnet Volt: 12 : 41.70...83.40 Overflow cm3/10s: (27.80...97.30) 1/min: 2250 quantity 2nd speed 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 5.50...8.50 10005:: (3.00...11.00) Shutoff electromagnet Volt: 12 Overflow : 55.60...139.00 cm3/10s: (41.70...152.90) cm3/: 2.0quantity Dispersion 1000s.: (3.0) Delivery quant. and breakaway char.: High Idle: 3rd speed 1/min: 2700 1/mi: 525 1st speed Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.00...9.00 electromagnet Volt: 12 Del. quantity cm3/: 0.00...6.00 1000s.: (0.00...6.00) 5th speed 1/min: 2475 1000s.: (4.00...12.00) Shutoff Residual: 1.Rotacao 1/min: 550 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 2.50...3.50 1000s.: (1.00...5.00) Shutoff electromagnet volt: 12

2nd speed 1/min: 500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 3.20...5.20 1000s.: (1.70...6.70) Load-dependent start of delivery: Inj.-qty.dif.measurement: 1/min: 1250 3rd speed cm3/: 6.00...12.00* Inj.-qty. difference 1000s.: (5.00...13.00) Shutoff electromagnet Volt: 12 1/min: 1250 5th speed cm3/: 2.00...8.00# Inj.-qty. difference 1000s.: (2.00...8.00) Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1250 : 0.60...0.80* TD-travel ram: (0.60...0.80) difference -Shutoff electromagnet Volt: 12 3rd speed 1/min: 1250 TD-travel : 1.40...1.80# difference mm: (1.10...2.10) Shutoff electromagnet Volt: 12 3rd speed 1/min: 1250 Supply pump-: 1.10...1.50# pressure bar: (0.90...1.70) difference Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1st speed 1/min: 180 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 35.00...85.00 1000s.: (35.00...85.00) 2nd speed 1/min: 380 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.00...30.00 1000s.: (10.00...30.00) 1/min: 100 4th speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 35.00...85.00 1000s.: (35.00...85.00) Shutoff electromagnet:

Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation mm: 3.2...3.4 K. KF mm: 5.6...6.0 MS mm: 1.2...1.6 mm: 37.6...41.6 Ya mm: 50.4...63.3 Yb Remarks:

Note inst. in remarks column

Test scheet : FIA Edition : 15.06.92 replaces : 17.07.87

Calibrating oil : ISO-4113

Injection pump : VE4/9F2300R282 Type number : 0 460 494 214

Customer Part-No. :

Customer—specific information Customer : FIAT-AUTO

Engine : M705 LA 19.0 DUKATO

Power KW: 51

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 022

Openina |

Pressure bar: 130.00...133.00

Test inj. tubing : motornah

Outside diameter : 6.00 x Mall thickness : 2.00 x Length mm: 450

Injection pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500

Setting value mm: 4.30...4.70

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500

Setting value bar: 5.60...6.20

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500

Del. quantity cm3/

1000s.: 31.00...32.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.0 1000s.: (3.0)

Low-idle speed regulation

Speed 1/min: 390

Del. quantity cm3/

1000s.: 6.00...10.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000s.: (2.5)

Full-load speed regulation

Speed 1/min: 2450

Del. quantity cm3/

1000s.: 18.00...24.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 55.00...95.00

mind 1000s.: 55.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min: 1500 Charge press hPa: 12

Inj.-qty. cm3/

difference 1000s.: 9.00...17.00

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1.Speed 1/min: 1500

TD-travel

difference mm: 0.60...0.80

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

Shutoff 1/min: 2300 mm: 7.10...7.90 2nd speed TD travel mm: (6.80...8.20) Shutoff electromagnet Volt: 12 3rd speed 1/min: 1500 Shutoff electromagnet Volt: 12
Del. quantity cm3/: 18.00...24.00
1000S.: (16.00...26.00)
9th speed 1/min: 2300 mm: 4.30...4.70 mm: (3.80...5.20) TD travel Shutoff electromagnet Volt: 12 4th speed 1/min: 800 Shutoff mm: 1.70...2.50 TD travel mm: (1.40...2.80) Shutoff electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 31.00...34.00 Supply-pump pressure characteristic: 1000s.: (30.00...35.00) 1/min: 1500 1st speed 1/min: 2300 12th speed Supply-pump Shutoff electromagnet Volt: 12
Del. quyntity cm3/: 31.00...32.00
1000s.: (29.00...34.00)
20th speed 1/min: 600 bar: 7.40...8.00 pressure bar: (7.00...8.40) Shutoff electromagnet Volt: 12 2nd speed 1/min: 1500 20th speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 31.50...35.50 1000s.: (30.50...36.50) Supply-pump bar: 5.60...6.20 pressure bar: (5.20...6.60) Shutoff electromagnet Volt: 12 3rd speed 1/min: 400 Mech. shutoff: Supply-pump Electr. shutoff: pressure bar: 2.80...3.40 bar: (2.40...3.80) Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: Idle delivery: 1/min: 600 1st speed Shutoff 1st speed 1/min: 390 Shutoff electromagnet Volt: 12 : 41.70...83.40 Overflow cm3/10s: (41.70...83.40) 1/min: 2300 quantity 2nd speed Shutoff 1/min: 440 electromagnet Volt: 12 2nd speed Overflow ' : 55.60...139.00 Shutoff cm3/10s: (55.60...139.00) Delivery-quant. and breakaway char.: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 1/min: 2750 2nd speed Shutoff Load-dependent start of delivery: Inj.-qty.dif.measurement:

1/min: 1500 3rd speed cm3/: 9.00...17.00 Inj.-qty. difference 1000s.: (9.00...17.00) Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1/min: 1500 1st speed : 0.60...0.80 TD-travel difference mm: (0.60...0.80) Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1st speed 1/min: 300 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 45.00...75.00 1000s.: (45.00...75.00) 1/min: 400 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 26.00...46.00 1000s.: (26.00...46.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 55.00...95.00 1000s.: (55.00...95.00) Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation K mm: 3.2...3.4 KF mm: 5.7...6.0 mm: 1.7..1.95 MS mm: 2.5 SVS max. mm: 37.2...39.2 Ya mm: 42.9...51.6 Yb Remarks:

Note inst. in remarks column

Test scheet

Edition : 15.06.92 : 19.07.89 : ISO-4113 replaces Calibrating oil

Injection pump : VE4/9F2250R293 Type number : 0 460 494 221

Customer Part-No. :

Customer-specific information

Customer

Engine : 086T-1.6L LLK

TEST BENCH REQUIREMENTS

Calibrating-oil return tamb.

with thermometer ; 40...48 Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 000

Opening |

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1250 Speed Charge press. hPa: 750

Setting value mm: 3.00...3.40

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1250 Speed Charge press hPa: 750

Setting value bar: 4.90...5.50

Shutoff electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500 Charge press. hPa: 750

Del. quantity cm3/ 1000s.: 42.00...43.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5

1000s.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 700 Del. quantity cm3/

1000s.: 26.50...27.50

Shutoff

electromagnet Volt: 12

Residual-Delivery Setting

Speed 1/min: 550

Del. quantity cm3/

1000s.: 2.00...3.00

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2525 Speed Charge press hea: 750

Del. quantity cm3/

1000s.: 13.00...17.00

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 35.00...85.0u mind 1000s.: 35.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min: 1250 hPa: 12 Charge press

Inj.-qty. cm3/

difference 1000s.: 7.00...9.00*

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1/min: 1250 1.Speed SP press.-dif.measurement

pompa di mandata (FI		+	1st speed 1/min:	700
1. Speed 1/min:	1250	†	Shutoff	40
Supply pump		†	electromagnet Volt:	14 70 07 10
pressure	0.40 0.70	†	Overflow :	41.7083.40
difference bar:	0.100.30*	†	quantity cm3/10s:	
Shutoff	43	†	2nd speed 1/min:	
electromagnet Volt:	12	†	Charge press. hPa:	750
Tuama aki		†	Shutoff	40
Inspection pump test		†	electromagnet Volt:	12 EE 40 470 00
Test specifications	in parentneses	†	Overflow : quantity cm3/10s:	77.00(37.00
Timing-device charac	taniatia.	†	quantity cms/rus:	(41.70152.90)
Thing vevice charac	iteristic:	T	Dalframe and	books also abon a
1st speed 1/min:	2250	Ť	Delivery-quant. and	breakaway chan.:
Charge press hPa:		T		
	7.007.80	T	1nd speed 1/min:	000
	(6.708.10)	T	Charge-air pressure	-cotting
electromagnet Volt:		I	point hPa:	760
2nd speed 1/min:	2000	T	LDA-stroke mm:	5 5
Charge press hPa:		I	Shutoff	J J
TD travel mm:		T	electromagnet Volt:	10
	(6.107.50)	T	Del. quantity cm3/:	
Shutoff """.	(0.107.50)	T		(30.5036.50)
electromagnet Volt:	12	T	2nd speed 1/min:	
3rd speed 1/min:		T		
Charge press hPa:		T	Charge press. hPa: Shutoff	טכז
	3.003.40	T		12
	(2.50,3.90)	T	electromagnet Volt:	16
Shutoff	(C.)(J)	T	Del. quantity cm3/:	(0.006.00)
electromagnet Volt:	10	T	5th speed 1/min:	2525
4th speed 1/min:	1000	T		
		Ť	Charge press. hPa: Shutoff	750
	1.702.50	Ť		12
	(1.402.80)	T	electromagnet Volt:	12 00 42 00
Shutoff	(1.402.00)	T	Del. quantity cm3/:	(11.0019.00)
electromagnet Volt:	10	T	8th speed 1/min:	2/25
etectronagnet vott.	12	T		
Supply-pump pressure	- charactonictic:	T	Charge press. hPa: Shutoff	750
ample promp pressure	e characteristic:	Ť		12
1st speed 1/min:	200	T	electromagnet Volt: Del. quantity cm3/:	24 EU 24 EU
		T	1000c	(25.5037.50)
_ ·	750	T		2250
Supply-pump pressure bar:	3.303.90	T	9th speed 1/min: Charge press. hPa:	
Shutoff	3.303.90	Ι	Shutoff	750
electromagnet Volt:	12	I	electromagnet Volt:	12
2nd speed 1/min:		Τ	Del. quantity cm3/:	
Charge press. hPa:		T		(35.1039.50)
Supply-pump	130	I	12th speed 1/min:	
	4.905.50	T	Charge press. hPa:	
Shutoff	4.70,5.50	T	Shutoff	700
electromagnet Volt:	10	T	electromagnet Volt:	12
3rd speed 1/min:		T	Del. quyntity cm3/:	
Charge press. hPa:		T		(40.3044.70)
Supply-pump	100	Ι	18th speed 1/min:	
	7.708.30	Ι	Shutoff	100
Shutoff Dan:	1.100.30	I	electromagnet Volt:	12
electromagnet Volt:	12	Ι		
Cooli omagnet vott:	16	Ι	Del. quantity cm3/:	(24.0030.00)
Overlow quantity at	overflow value	I	20th speed 1/min:	
Officer qualities at	OFCITOW VALVE.	I	Charge press hPa:	

Del. quantity cm3/: 2.50...4.50 1000s.: (0.00...7.00) Shutoff electromagnet Volt: 12 Del. quantity cm3/: 34.00...37.00 1000s.: (32.50...38.50) Load-dependent start of delivery: 21th speed 1/min: 600 Inj.-qty.dif.measurement: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 25.00...30.00 1000s.: (22.50...32.50) 1st speed 1/min: 1250 Inj.-qty. cm3/ : 7.00...9.00* difference 1000s.: -Shutoff Mech. shutoff: electromagnet Volt: 12 1/min: 1250 cm3/: 9.00...13.00' 3rd speed Electr. shutoff: Inj.—qty. difference 1000s.: (7.00...15.00) 1st speed 1/min: 425 Shutoff Del. quantity cm3/: 0.00...3.00 electromagnet Volt: 12 1/min: 1250 1000s.: (0.00...3.00) 5th speed cm3/: 2.00...8.00# Inj.-qty. Idle delivery: difference 1000S.: (2.00...8.00) Shutoff electromagnet Volt: 12 2nd speed 1/min: 1250 Damper set qty.: TD-travel : 0.60...0.80 2nd speed 1/min: 1000 mm: (0.60...0.80) difference Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 11.00...13.00 electromagnet Volt: 12 1/min: 1250 4th speed 1000s.: (8.00...16.00) : 1.00...1.40# TD-travel difference mm: (0.70...1.70) LFG-setting: solidale con carcassa: SP press.-dif.measurement: Idle delivery: pompa di mandata (FP): 1/min: 1250 1st speed 1st speed 1/min: 425 Supply pump-Shutoff pressure : 0.10...0.30* difference electromagnet Volt: 12 bar: (0.20...0.20) Del. quantity cm3/: 9.00...11.00 Shutoff 1000s.: (4.50...15.50) electromagnet Volt: 12 cm3/: 2.5 1/min: 1250 Dispersion 4th speed 1000s.: (3.0) Supply pumppressure : 0.60...1.00# High Idle: difference bar: (0.40...1.20) Shutoff 1st speed 1/mi: 525 electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: Del. quantity cm3/: 9.00...11.00 1000s.: (5.00...15.00) 1st speed 1/min: 150 Shutoff Residual: electromagnet Volt: 12 Del. quantity cm3/: 35.00...85.00 1000s.: (35.00...85.00) 1/min: 550 1.Rotacao Shutoff electromagnet Volt: 12 2nd speed 1/min: 350 Del. quantity cm3/: 2.00...3.00 1000s.: (-0.50...5.50) Shutoff electromagnet Volt: 12 Del. quantity cm3/: 17.00...37.00 1000s.: (17.00...37.00) 1/min: 500 2nd speed Shutoff electromagnet Volt: 12 4th speed 1/min: 100

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 35.00...85.00 1000s.: (35.00...85.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

mm: K1 K

MS

SVS max.

mm: 1.1...1.5 mm: 3.1 mm: 37.6...41.6 Ya mm: 50.4...63.3 Yb

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut (46)

Note inst. in remarks column

Test scheet : PEU
Edition : 04.06.92
replaces : 14.07.89
Calibrating oil : ISO-4113

Injection pump : VE4/9F2300R162-4 Type number : 0 460 494 224

Customer Part-No. :

Customer-specific information

Customer : PSA

Engine : XUD9 DEP

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp. °C

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 022

Opening |

Pressure bar: 130...133

Test inj. tubing : motornah

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250

Setting value mm: 4.00...4.40

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250

Setting value bar: 4.20...4.80

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250

Del. quantity cm3/

1000s.: 28.00...29.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000S.: (2.5)

Low-idle speed regulation

Speed 1/min: 375

Del. quantity cm3/ 1000s.: 7.00...9.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 10008.: (3.0)

Full-load speed regulation

Speed 1/min: 2440

Del. quantity cm3/

1000s.: 20.00...26.00

Start:

Speed 1/min: 100

Del. quantity cm3/: 44.00...84.00

mind 1000s.: 24.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min: 1250 Charge press hPa: 12

Inj.—qty. cm3/

difference 1000s.: *4.00...12.00

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1. Speed 1/min: 1250

TD-travel

difference mm: *0.70...0.90

Shutoff

electromagnet Volt: 12 SP press.—dif.measurement pompa di mandata (FP) 1.Speed 1/min: 1250

Supply pump

pressure

difference bar: 0.00...0.20

Shutoff

electromagnet Volt: 12

المسامة والمقادمة	+	3rd speed 1/min: 2540
Test specifications in parentheses	+	Shutoff
	+	electromagnet Volt: 12
Timing-device characteristic:	+	Del. quantity cm3/: 10.0016.00
•	1	1000s.: (9.00,17.00)
2nd speed 1/min: 2000	1	5th speed 1/min: 2440
TD travel mn: 7.608.40		Shutoff
mm: (7.308.70)	1	electromagnet Volt: 12
Shutoff	1	Del. quantity cm3/: 20.0026.00
electromagnet Volt: 12	T	1000s.: (19.0027.00)
3rd speed 1/min: 1250	T	
	T	
	î	Shutoff
mm: (3.504.90)	†	electromagnet Volt: 12
Shutoff	†	Del. quantity cm3/: 29.2031.20
electromagnet Volt: 12	+	1000\$.: (28.2032.20)
4th speed 1/min: 800	+	10th speed 1/min: 2000
TD travel mm: 1.502.30	+	Shutoff
mm: (1.202.60)	+	electromagnet Volt: 12
Shutoff	+	Del. quantity cm3/: 30.1032.10
electromagnet Volt: 12	+	1000s.: (29.1033.10)
	1	11th speed 1/min: 800
Supply-pump pressure characteristic:	1	Shutoff
a supplied from the coordinate of the coordinate		elestromagnet Volt: 12
1st speed 1/min: 800	1	Del. quantity cm3/: 28.2030.80
Supply—pump	\mathbf{I}	1000s.: (27.5031.50)
pressure bar: 3.003.60	T	
•	T	12th speed 1/min: 1250
Shutoff	T	Shutoff
electromagnet Volt: 12	+	electromagnet Volt: 12
2nd speed 1/min: 1250	+	Del. quyntity cm3/: 28.0029.00
Supply-pump	+	1000s.: (26.5030.50)
pressure bar: 4.204.80	+	20th speed 1/min: 500
Shutoff	+	Shutoff
electromagnet Volt: 12	E .	alaskamanak Malika 12
	7	electromagnet Volt: 12
3rd speed 1/min: 2000	Ī	
	Ī	Del. quantity cm3/: 28.5031.50
3rd speed 1/min: 2000	† †	
3rd speed 1/min: 2000 Supply-pump	+++++++++++++++++++++++++++++++++++++++	Del. quantity cm3/: 28.5031.50 1000s.: (28.0032.00)
3rd speed 1/min: 2000 Supply-pump pressure bar: 6.306.90 Shutoff	† † † †	Del. quantity cm3/: 28.5031.50
3rd speed 1/min: 2000 Supply-pump pressure bar: 6.306.90	† + + + + -	Del. quantity cm3/: 28.5031.50 1000s:: (28.0032.00) Mech. shutoff:
3rd speed 1/min: 2000 Supply-pump pressure bar: 6.306.90 Shutoff electromagnet Volt: 12	† 	Del. quantity cm3/: 28.5031.50 1000s.: (28.0032.00)
3rd speed 1/min: 2000 Supply-pump pressure bar: 6.306.90 Shutoff	***	Del. quantity cm3/: 28.5031.50 1000s.: (28.0032.00) Mech. shutoff: Idle delivery:
3rd speed 1/min: 2000 Supply-pump pressure bar: 6.306.90 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve:	***	Del. quantity cm3/: 28.5031.50 1000S:: (28.0032.00) Mech. shutoff: Idle delivery: 1st speed 1/min: 375
3rd speed 1/min: 2000 Supply-pump pressure bar: 6.306.90 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 500	** ** ** ** ** ** ** **	Del. quantity cm3/: 28.5031.50 1000S:: (28.0032.00) Mech. shutoff: Idle delivery: 1st speed 1/min: 375 Shutoff
3rd speed 1/min: 2000 Supply-pump pressure bar: 6.306.90 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 500 Shutoff	 	Del. quantity cm3/: 28.5031.50 1000S:: (28.0032.00) Mech. shutoff: Idle delivery: 1st speed 1/min: 375 Shutoff electromagnet Volt: 12
3rd speed 1/min: 2000 Supply-pump pressure bar: 6.306.90 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 500 Shutoff electromagnet Volt: 12	 	Del. quantity cm3/: 28.5031.50 1000S:: (28.0032.00) Mech. shutoff: Idle delivery: 1st speed 1/min: 375 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.009.00
3rd speed 1/min: 2000 Supply-pump pressure bar: 6.306.90 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40	 - - - - - - - - - - - - - - - - - - -	Del. quantity cm3/: 28.5031.50 1000S.: (28.0032.00) Mech. shutoff: Idle delivery: 1st speed 1/min: 375 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.009.00 1000S.: (4.0012.00)
3rd speed 1/min: 2000 Supply-pump pressure bar: 6.306.90 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40)	 - - - - - - - - - - - - - - - - - - -	Del. quantity cm3/: 28.5031.50 1000S.: (28.0032.00) Mech. shutoff: Idle delivery: 1st speed 1/min: 375 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.009.00 1000S.: (4.0012.00) Dispersion cm3/: 2.5
3rd speed 1/min: 2000 Supply-pump pressure bar: 6.306.90 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 2250	 	Del. quantity cm3/: 28.5031.50 1000S:: (28.0032.00) Mech. shutoff: Idle delivery: 1st speed 1/min: 375 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.009.00
3rd speed 1/min: 2000 Supply-pump pressure bar: 6.306.90 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2rd speed 1/min: 2250 Shutoff	╂╌╉╌╉┈╀┈╀┈╀┈╀┈╏┈╂┈╂┈╏┈╂┄╂┈╂┈╀┈╂┈╂┈╂	Del. quantity cm3/: 28.5031.50 1000S.: (28.0032.00) Mech. shutoff: Idle delivery: 1st speed 1/min: 375 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.009.00 1000S.: (4.0012.00) Dispersion cm3/: 2.5 1000S.: (3.0) Shutoff
3rd speed 1/min: 2000 Supply-pump pressure bar: 6.306.90 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2rd speed 1/min: 2250 Shutoff electromagnet Volt: 12	╂╌╉╼╉╼┞╾╄╌╂╌╏╾╂ ╌╂╾┼╌┼╾╂╌╂╾╂╌╂╶┼╌╂╌╂╶┼	Del. quantity cm3/: 28.5031.50 1000S:: (28.0032.00) Mech. shutoff: Idle delivery: 1st speed 1/min: 375 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.009.00
3rd speed 1/min: 2000 Supply-pump pressure bar: 6.306.90 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2rd speed 1/min: 2250 Shutoff	 	Del. quantity cm3/: 28.5031.50 1000S.: (28.0032.00) Mech. shutoff: Idle delivery: 1st speed 1/min: 375 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.009.00 1000S.: (4.0012.00) Dispersion cm3/: 2.5 1000S.: (3.0) Shutoff
3rd speed 1/min: 2000 Supply-pump pressure bar: 6.306.90 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2rd speed 1/min: 2250 Shutoff electromagnet Volt: 12	╁╌╉╌╉┈╂┈╂┈╂┈╏╌╁ ╌╏╌┼┈┼┈┼┈┼┈┼┈┼┈┼┈┼┈┼	Del. quantity cm3/: 28.5031.50 1000S:: (28.0032.00) Mech. shutoff: Idle delivery: 1st speed 1/min: 375 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.009.00 1000S:: (4.0012.00) Dispersion cm3/: 2.5 1000S:: (3.0) Shutoff electromagnet Volt: 12
3rd speed 1/min: 2000 Supply-pump pressure bar: 6.306.90 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 2250 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00	╁╌╅╌╉┈╂┈╂┈╂┈╏╌╁ ╌╂┈╎╌╅┈╂┈┼┈╂┈╂┈╂┈╂┈╀┈┼┈┼┈┼	Del. quantity cm3/. 28.5031.50 1000S.: (28.0032.00) Mech. shutoff: Idle delivery: 1st speed 1/min: 375 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.009.00 1000S.: (4.0012.00) Dispersion cm3/: 2.5 1000S.: (3.0) Shutoff electromagnet Volt: 12 4th speed 1/min: 550 Shutoff
3rd speed 1/min: 2000 Supply-pump pressure bar: 6.306.90 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 2250 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00)	╁╌╉╌╉┈╂┈╂┈╂╌╂╌╏╌╁ ╌╂╌┼┈╅┈┼╌╂┈┼┈┼┈╂┈╀┈┼┈┼┈┼	Del. quantity cm3/. 28.5031.50 1000S.: (28.0032.00) Mech. shutoff: Idle delivery: 1st speed 1/min: 375 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.009.00 1000S.: (4.0012.00) Dispersion cm3/: 2.5 1000S.: (3.0) Shutoff electromagnet Volt: 12 4th speed 1/min: 550 Shutoff electromagnet Volt: 12
3rd speed 1/min: 2000 Supply-pump pressure bar: 6.306.90 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 2250 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00	╁╌╉╌╉┈╉┈╉┈╂┈╏╌╁╍╂╾╁╌╉ ┈╏ ╌╂╌╂╌╂┈╂┈╂┈╂┈╂┈╂┈╂┈╂	Del. quantity cm3/. 28.5031.50 1000S: (28.0032.00) Mech. shutoff: Idle delivery: 1st speed 1/min: 375 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.009.00
3rd speed 1/min: 2000 Supply-pump pressure bar: 6.306.90 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 2250 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00)	╁╾╉╼╉╼╉ ╸ ╉╼╏╾╉╼╏╾╉╼╂╾╁ ╸╏ ╾╉╼╂╸╂╼╂╾╂╼╂╼╂╼╂╼╂╾╂╸╂╸╂╾╂╼╂╾╂	Del. quantity cm3/. 28.5031.50 1000S.: (28.0032.00) Mech. shutoff: Idle delivery: 1st speed 1/min: 375 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.009.00 1000S.: (4.0012.00) Dispersion cm3/: 2.5 1000S.: (3.0) Shutoff electromagnet Volt: 12 4th speed 1/min: 550 Shutoff electromagnet Volt: 12
3rd speed 1/min: 2000 Supply-pump pressure bar: 6.306.90 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 2250 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00) Delivery-quant. and breakaway char.:	╁╌╉╌╉╌╉╌╉╌╂╌╏╌╁╼╂╾╁╌╂ ╌╏ ╌╂╌╂╌╂╌╂╶╂╶╂╌╂╌╂╌╂╌╂╌╂╌╂	Del. quantity cm3/: 28.5031.50 1000S:: (28.0032.00) Mech. shutoff: Idle delivery: 1st speed 1/min: 375 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.009.00 1000S:: (4.0012.00) Dispersion cm3/: 2.5 1000S:: (3.0) Shutoff electromagnet Volt: 12 4th speed 1/min: 550 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 2.503.50 1000S:: (1.005.00)
3rd speed 1/min: 2000 Supply-pump pressure bar: 6.306.90 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 2250 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00) Delivery-quant. and breakaway char.: 2nd speed 1/min: 2650	╁╌╉╌╉╌╉╌╂╌╬╌╂╌╬╌╂╼╂╍╁╌╂ ╌╏ ╌╂╌╂╌╂╌╂╌╂╌╂╌╂╌╂╌╂╌╂╌╂╌╂╌╂	Del. quantity cm3/: 28.5031.50 1000S:: (28.0032.00) Mech. shutoff: Idle delivery: 1st speed 1/min: 375 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.009.00 1000S:: (4.0012.00) Dispersion cm3/: 2.5 1000S:: (3.0) Shutoff electromagnet Volt: 12 4th speed 1/min: 550 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 2.503.50 1000S:: (1.005.00) LFG-setting:
3rd speed 1/min: 2000 Supply-pump pressure bar: 6.306.90 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2rd speed 1/min: 2250 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00) Delivery-quant. and breakaway char.: 2nd speed 1/min: 2650 Shutoff	╁╌╉╌╉╌╉╌╂╌╏╌╂╌╏╌╂╌╂╌╂╌╂╌╂╌╂╌╂╌╂╶╂╶╂╌╂╌╂╌╂╌╂╌╂╌╂	Del. quantity cm3/: 28.5031.50 1000S:: (28.0032.00) Mech. shutoff: Idle delivery: 1st speed 1/min: 375 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.009.00 1000S:: (4.0012.00) Dispersion cm3/: 2.5 1000S:: (3.0) Shutoff electromagnet Volt: 12 4th speed 1/min: 550 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 2.503.50 1000S:: (1.005.00) LFG-setting: solidale con carcassa:
3rd speed 1/min: 2000 Supply-pump pressure bar: 6.306.90 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 2250 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00) Delivery-quant. and breakaway char.: 2nd speed 1/min: 2650 Shutoff electromagnet Volt: 12	 -+-+-+- -+- -+- -+-+-+-+-+-+-+-+-+-+-+	Del. quantity cm3/: 28.5031.50 1000S:: (28.0032.00) Mech. shutoff: Idle delivery: 1st speed 1/min: 375 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.009.00 1000S:: (4.0012.00) Dispersion cm3/: 2.5 1000S:: (3.0) Shutoff electromagnet Volt: 12 4th speed 1/min: 550 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 2.503.50 1000S:: (1.005.00) LFG-setting:
3rd speed 1/min: 2000 Supply-pump pressure bar: 6.306.90 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2rd speed 1/min: 2250 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00) Delivery-quant. and breakaway char.: 2nd speed 1/min: 2650 Shutoff	 -+-+-+- -+- -+-+- -+-+-+-+-+-+-+-+-+-+	Del. quantity cm3/: 28.5031.50 1000S:: (28.0032.00) Mech. shutoff: Idle delivery: 1st speed 1/min: 375 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.009.00 1000S:: (4.0012.00) Dispersion cm3/: 2.5 1000S:: (3.0) Shutoff electromagnet Volt: 12 4th speed 1/min: 550 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 2.503.50 1000S:: (1.005.00) LFG-setting: solidale con carcassa:

Shutoff Del. quantity cm3/: 15.00...35.00 electromagnet Volt: 12 Del. quantity cm3/: 7.00...9.00 1000s.: (1000s.: (4.00...12.00) 1/min: 100 4th speed Shutoff Load-dependent start of delivery: electromagnet Volt: 12 inj.-qcy.dif.measurement: Del. quantity cm3/: 44.00...84.00 10**0**0s.: (24.00... 1/min: 1250 1st speed Inj.-qty. cm3/ : #3.00...5.00 Shutoff electromagnet: difference 1000S.: (3.00...5.00) Shutoff Cut-in electromagnet Volt: 12 min voltage : 10.0 3rd speed 1/min: 1250 Rated voltage : 12.0 cm3/: *4.00...12.00 Inj.-qty. difference 1000S.: (2.00...14.00) Mounting and assembly dimensions: Shutoff electromagnet Volt: 12 Designation mm: 3.2...3.4 K TD-travel dif.measurement: KF mm: 5.7...6.0 correttore anticipo iniezione (SV): MS mm: 1.3..1.55 1/min: 1250 1st speed XK mm: 17.0...19.0 : *0.70...0.90 TD-travel mm: 14.2...17.6 XL difference mm: (0.70...0.90) mm: 19.8...21.8 Ya mm: 79.4...91.6 Shutoff electromagnet Volt: 12 Remarks: SP press.—dif.measurement: pompa di mandata (FP): 1st speed 1/min: 1250 For adjustment of switching point Supply pump-(EGR valve), include 10.8 mm spacer : #0.00...0.20 pressure at third fuel-delivery stop. bar: (0.00...0.20) difference Shutoff electromagnet Volt: 12 Part-load del.at 3rd inj.-gty. terza fermo della portata stop (EGR set) scarico) (ARF) gaz d'échappement-ARF) Spacing mm: 10.8 1/min: 1125 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 6.00...10.00 1000s.: (5.50...10.50) Automatic starting fuel delivery: 1/min: 200 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 40.00...80.00 1000s.: (20.00... 2nd speed 1/min: 300 Shutoff electromagnet Volt: 12

Note inst. in remarks column

Test scheet : FIA Edition : 15.06.92 : 17.01.89 replaces : ISO-4113 Calibrating oil

Injection pump : VE4/9F2100R303 : 0 460 494 225 Type number

Customer Part-No. :

Customer-specific information Customer : FIAT-AUTO

Engine : X8/45S RITMO, PRISMA

Power KW: 66

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30,..0.40

Calibrating nozzle-holder

assembly : 1 688 901 022

Opening |

bar: 130.00...133.00 Pressure

Test inj. tubing : motornah

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Start of delivery

Indicator setting Piston stroke mm: 1.0 Outlet. : A

Injection-pump setting values Test specifications in parentheses

Timing device travel

1/min: 1500 Speed Charge press. hPa: 1000

mm: 5.50...5.90 Setting value

AFB/AF8

Volt: 12 valve

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1500 Speed Charge press hPa: 1000 Setting value bar: 5.30...5.90

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1500 Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 52.00...53.00

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000s.: (2.5)

Full-load del. w/out charge press.:

1/min: 600 Speed

Del. quantity cm3/

1000s.: 40.00...41.00

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KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Residual-Delivery Setting

Speed 1/min: 700

Del. quantity cm3/

1000s.: 4.00...6.00

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2300 Speed Charge press hPa: 1000

Del. quantity cm3/ 1000s.: 30.00...36.00

Start:

1/min: 100

Del. quantity cm3/: 55.00...85.00 mind 1000s.: 55.00

TD travel mm: 1.50...2.30 Volt: 12 Valve mm: (1.20...2.60) Shutoff KSB/AFB electromagnet Volt: 12 valve **Volt: 12** Shutoff electromagnet Volt: 12 8th speed 1/min: 1000 Load-dependent start of delivery: Inj.-qt/.dif.measurement: Charge press. hPa: 1000 1/min: 1500 mm: 2.50...5.50 Speed TD travel Charge press hPa: 12 mm: (2.50...5.50) Inj.—qty. cm3/Shutoff difference 1000s.: 8.00...16.00# electromagnet Volt: 12 KSB/AFB 1/min: 500 9th speed valve Volt: 12 Charge press. hPa: 1000 mm: 3.20...4.80 mm: (2.50...5.50) Shutoff TD travel electromagnet Volt: 12 TD-travel dif.measurement Shutoff correttore anticipo iniezione (SV) electromagnet Volt: 12 1/min: 1500 1.Speed TD-travel Supply-pump pressure characteristic: mm: 0.80...1.00# difference KSB/AFB 1/min: 2100 1st speed valve Volt: 12 Charge press. hPa: 1000 Supply-pump Shutoff bar: 7.00...7.60 electromagnet Volt: 12 pressure SP press.-dif.measurement KSB/AFB pompa di mandata (FP) valve Volt: 12 1. Speed 1/min: 1500 Shutoff Supply pump electromagnet Volt: 12 pressure 1/min: 1500 2nd speed difference bar: 0.10...0.30* Charge press. hPa: 1000 KSB/AFB Supply-pump valve Volt: 12 bar: 5.30...5.90 pressure Shutoff KSB/AFB electromagnet Volt: 12 Volt: 12 valve Shutoff Inspection-pump test specifications electromagnet Volt: 12 Test specifications in parentheses 3rd speed 1/min: 800 Charge press. hPa: 1000 Timing-device characteristic: Supply-pump pressure bar: 3.20...3.80 2nd speed 1/min: 2100 KSB/AFB hPa: 1000 Charge press valve Volt: 12 TD travel mm: 8.20...9.00 Shutoff mm: (7.90...9.30) electromagnet Volt: 12 KSB/AFB valve Volt: 12 Overlow quantity at overflow valve: Shutoff electromagnet Volt: 12 1st speed 1/min: 800 1/min: 1500 3rd speed Charge press. hPa: 1000 Charge press hPa: 1000 KSB/AFB TD travel mm: 5.50...5.90 valve Volt: 12 mm: (5.20...6.20) Shutoff KSB/AFB electromagnet Volt: 12 : 41.70...83.40 Volt: 12 valve Overflow cm3/10s: (41.70...83.40) 1/min: 2100 Shutoff quantity electromagnet Volt: 12 2nd speed 1/min: 800 4th speed Charge press. hPa: 1000 Charge press hPa: 1000 KSB/AFB valve Volt: 12

KSB/AFB

Shutoff		1	KSB/AFB
electromagnet Volt:	12	1	valve Volt: 12
Overflow	55 /0 470 00	T	
	55.60139.00	+	Shutoff
quantity cm3/10s:	(55.60139.00)	+	electromagnet Volt: 12
		+	Del. quyntity cm3/: 52.0053.00
Delivery-quant. and	hreakeway char ·	1	10008.: (50.5054.50)
becively quality alk	Di Caranay Char	Ţ	
		+	18th speed 1/min: 600
		+	KSB/AFB
1nd speed 1/min:	800	+	valve Volt: 12
Charge-air pressure	-setting	1	Shutoff
point hPa:		}	
		T	electromagnet Volt: 12
LDA-stroke mm:	0.2	+	Del. quantity cm3/: 40.0041.00
KSB/AFB		+	10 00 s.: (38.0043.00)
valve Volt:	12	1	20th speed 1/min: 800
Shutoff		1	KSB/AFB
	12	T	
electromagnet Volt:		+	valve Volt: 12
Del. quantity cm3/:		+	Shutoff
1000s.:	(41.5046.50)	1	electromagnet Volt: 12
2nd speed 1/min:	2450	1	Del. quantity cm3/: 37.0039.00
Charge press. hPa:		1	1000s.: (35.5040.50)
	1000	T	10005.: (33.3040.30)
KSB/AFB		+	
valve Volt:	12	+	Mech. shutoff:
Shutoff		1	
electromagnet Volt:	12	1	Electr. shutoff:
		T	etectr. Silutori:
Del. quantity cm3/:		+	
1000s.:	(11.0021.00)	+	1st speed 1/min: 400
3rd speed 1/min:	2650	+	Del. quantity cm3/: 0.003.00
Charge press. hPa:		1	1000s.: (0.003.00)
KSB/AFB	1000	T	1000000
	49	T	
valve Volt:	12	+	Damper set qty.:
Shutoff		+	
electromagnet Volt:	12	+	LFG-setting:
Del. quantity cm3/:	0.007.00	1	solidale con carcassa:
1000s	-	1	Idle delivery:
		T	tate detivery.
5th speed 1/min:		+	
Charge press. hPa:	1000	+	1st speed 1/min: 400
KSB/AFB		+	KSB/AFB
valve Volt:	12	1	valve Volt: 12
Shutoff	· -	1	Shutoff
alaskamanak Unite	13	T	
electromagnet Volt:	12	+	electromagnet Volt: 12
Del. quantity cm3/:	<i>3</i> 0.0036.00	+	Del. quantity cm3/: 11.0015.00
1000s.:	(29.0037.00)	+	1000s.: (9.5016.50)
9th speed 1/min:		1	
Charge press. hPa:		- 1	Residual:
LCD ACD	1000	T	Residual.
KSB/AFB		+	
valve Volt:	12	+	1.Rotacao 1/min: 700
Shutoff		1	KSB/AFB
electromagnet Volt:	12	1	valve Volt: 12
Del. quantity cm3/:		T	
		T	Shutoff
	(49.5054.50)	+	electromagnet Volt: 12
10th speed 1/min:	800	+	Del. quantity cm3/: 4.006.00
Charge press. hPa:	1000	1	1000s.: (3.007.00)
KSB/AFB		1	2nd speed 1/min: 500
	43	T	
valve Volt:	16	Ť	KSB/AFB
Shutoff			valve Volt: 12
		T	
electromagnet Volt:	12	Ţ	Shutoff
electromagnet Volt: Del. quantity cm3/:		Ī	Shutoff
Del. quantity cm3/:	55.5058.50	I	Shutoff electromagnet Volt: 12
Del. quantity cm3/: 1000s.:	55.5058.50 -	+	Shutoff electromagnet Volt: 12 Del. quantity cm3/: 6.509.50
Del. quantity cm3/:	55.5058.50 - 1500	+	Shutoff electromagnet Volt: 12

Load-dependent start of delivery: Inj.-qty.dif.measurement: 1/min: 1500 1st speed Inj.-qty. cm3/ : 5.00...7.00* difference 1000s.: -KSB/AF9 valve Volt: 12 Shutoff electromagnet Volt: 12 1/min: 1500 3rd speed cm3/: 8.00...16.00# Inj.—qty. difference 1000S.: (8.00...16.00) KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 TD-trave' dif.measurement: correttor- anticipo iniezione (SV): 1/min: 1500 1st speed TD-travel : 0.80...1.00# difference mm: (0.80...1.00) KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 SP press.—dif.measurement: pompa di mandata (FP): 1st speed 1/min: 1500 Supply pumppressure : 0.10...0.30* bar: (0.20...0.20) difference KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1st speed 1/min: 220 KSB/AFB valve Volt: 12 Timing valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 57.00...83.00 1000s.: (57.00...83.00) 2nd speed 1/min: 300 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 37.50...52.50 1000s.: (37.50...*5*2.50) 4th speed 1/min: 100

KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 55.00...85.00 1000s.: (55.00...85.00) Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation mm: 3.1...3.5 KF mm: 5.6...6.0 MS mm: 1.0...1.4 LDA stroke mm: 6.2 mm: 18.8...20.8 mm: 10.0...13.4 XL mm: 37.2...39.2 mm: 37.5...43.5 Ya Yb * Correction at adjusting nut (46) Operate control lever after each manifold-pressure compensator pressure change.

Note inst. in remarks column

Test scheet : REN : 16.06.92 Edition replaces : 26.07.88 Calibrating oil : ISO-4113

Injection pump : VE4/9F2350R309 : 0 460 494 228 Type number

Customer Part-No. :

Customer-specific information Customer : RNUR

: J8S - 736 Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening |

bar: 130.00...133.00 Pressure

Test inj. tubing : motornah

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Start of delivery

Indicator setting Piston stroke mm: 1.0 Outlet : A

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1125 Speed

Setting value mm: 2.60...3.00

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1125

Setting value bar: 4.20...4.80

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1125

Del. quantity cm3/

1000s.: 36.00...37.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000s.: (3.0)

Residual-Delivery Setting

1/min: 500

Del. quantity cm3/

1000s.: 2.00...6.00

Shucoff

electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2500

Del. quantity cm3/

1000s.: 20.00...26.00

Start:

Speed 1/min: 100 Del. quantity cm3/: 52.00...92.00 mind 1000S.: 52.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min: 1125

Inj.—qty. cm3/

difference 1000s.: 11.00...15.00#

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1/min: 1125 1.Speed

TD-travel

difference mm: 0.50...0.70#

Shutoff

electromagnet Volt: 12 SP press.-dif.measurement pompa di mandata (FP) 1.Speed 1/min: 1125

Supply pump

pressure

difference bar: 0.10...0.30*

Shutoff	electromagnet Volt: 12
electromagnet Volt: 12	Del. quantity cm3/: 0.005.00
Townsellow with the state of th	1000s.: (0.005.00)
Inspection pump test specifications	3rd speed 1/min: 2650
Test specifications in parentheses	+ Shutoff
	electromagnet Volt: 12
Timing-device characteristic:	Pol. quantity cm3/: 2.5010.50
	1000s.: (1.5011.50)
2nd speed 1/min: 2000 .	- 5th speed 1/min: 2500
TD travel mm: 7.107.90	+ Shutoff
mm: (6.808.20)	electromagnet Volt: 12
Shutoff	- Del. quantity cm3/: 20.0026.00
electromagnet Volt: 12	1000s.: (19.0027.00)
3rd speed 1/min: 1125	9th speed 1/min: 2250
TD travel mm: 2.603.00	+ Shutoff
mm: (2.103.50)	electromagnet Volt: 12
Shutoff	Pol. quantity cm3/: 35.3037.30
electromagnet Volt: 12	1000s.: (34.0038.60)
4th speed 1/min: 800	10th speed 1/min: 1750
TD travel mm: 0.701.50	- Shutoff
mm: (0.401.80)	+ electromagnet Volt: 12
Shutoff .	- Del. quantity cm3/: 34.5036.50
electromagnet Volt: 12	1000s.: (33.2037.80)
•	12th speed 1/min: 1125
Supply-pump pressure characteristic:	+ Shutoff
•	electromagnet Volt: 12
1st speed 1/min: 800	bel. quyntity cm3/: 36.0037.00
Supply-pump -	1000s.: (34.2038.80)
pressure bar: 3.103.70	20th speed 1/min: 800
Shutoff	Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
2nd speed 1/min: 1125	Del. quantity cm3/: 34.1037.10
Supply-pump -	1000s.: (33.3037.90)
pressure bar: 4.204.80	
Shutoff	Mech. shutoff:
electromagnet Volt: 12	
3rd speed 1/min: 2000	Electr. shutoff:
Supply-pump .	
pressure bar: 6.507.10	1st speed 1/min: 400
Shutoff	Del. quantity cm3/: 0.003.00
electromagnet Volt: 12	10000 (0.00 7.00)
	[1000s.: (0.003.00)
•	† 10005.: (0.003.00)
Overlow quantity at overflow valve:	+
•	Damper set qty.:
1st speed 1/min: 800	Damper set qty.: LFG-setting:
1st speed 1/min: 800 - Shutoff	Damper set qty.:
1st speed 1/min: 800 Shutoff electromagnet Volt: 12	Damper set qty.: LFG-setting:
1st speed 1/min: 800 Shutoff electromagnet Volt: 12 Overflow: 41.7083.40	Damper set qty.: LFG-setting: solidale con carcassa:
1st speed 1/min: 800 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40)	Damper set qty.: LFG-setting: solidale con carcassa: Idle delivery: 1st speed 1/min: 400
1st speed 1/min: 800 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 2250	Damper set qty.: LFG-setting: solidale con carcassa: Idle delivery: 1st speed 1/min: 400 Shutoff
1st speed 1/min: 800 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 2250 Shutoff	Damper set qty.: LFG-setting: solidale con carcassa: Idle delivery: 1st speed 1/min: 400 Shutoff electromagnet Volt: 12
1st speed 1/min: 800 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 2250 Shutoff electromagnet Volt: 12	Damper set qty.: LFG-setting: solidale con carcassa: Idle delivery: 1st speed 1/min: 400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 6.0010.00
1st speed 1/min: 800 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 2250 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00	Damper set qty.: LFG-setting: solidale con carcassa: Idle delivery: 1st speed 1/min: 400 Shutoff electromagnet Volt: 12
1st speed 1/min: 800 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 2250 Shutoff electromagnet Volt: 12	Damper set qty.: LFG-setting: solidale con carcassa: Idle delivery: 1st speed 1/min: 400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 6.0010.00 1000s.: (4.0012.00)
1st speed 1/min: 800 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 2250 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00)	Damper set qty.: LFG-setting: solidale con carcassa: Idle delivery: 1st speed 1/min: 400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 6.0010.00
1st speed 1/min: 800 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 2250 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00	Damper set qty.: LFG-setting: solidale con carcassa: Idle delivery: 1st speed 1/min: 400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 6.0010.00 1000S.: (4.0012.00) High Idle:
1st speed 1/min: 800 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 2250 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00)	Damper set qty.: LFG-setting: solidale con carcassa: Idle delivery: 1st speed 1/min: 400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 6.0010.00 1000S.: (4.0012.00) High Idle: 1st speed 1/mi: 500
1st speed 1/min: 800 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 2250 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00) Delivery—quant. and breakaway char.:	Damper set qty.: LFG-setting: solidale con carcassa: Idle delivery: 1st speed 1/min: 400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 6.0010.00 1000S.: (4.0012.00) High Idle: 1st speed 1/mi: 500 Shutoff
1st speed 1/min: 800 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 2250 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00)	Damper set qty.: LFG-setting: solidale con carcassa: Idle delivery: 1st speed 1/min: 400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 6.0010.00 1000S.: (4.0012.00) High Idle: 1st speed 1/mi: 500

Del. quantity cm3/: 8.50...12.50 1000s.: (6.50...14.50) Residual: 1/min: 500 1.Rotacao Shutoff electromagnet Volt: 12 Del. quantity cm3/: 2.00...6.00 1000s.: (2.00...6.00) Load-dependent start of delivery: Ini.-qty.dif.measurement: 1/min: 1125 1st speed Inj.-qty. cm3/ : 10.00..12.00* difference 1000s.: (10.00...12.00) Shutoff electromagnet Volt: 12 1/min: 1125 3rd speed cm3/: 11.00..15.00# Inj.-qty. difference 1000s.: (11.00...15.00) Shutoff electromagnet Volt: 12 1/min: 1125 5th speed cm3/: 2.00...8.001 Ini.-aty. difference 1000s.: (2.00...8.00) Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1125 TD-travel : 0.50...0.70# difference mm: (0.50...0.70) Shutoff electromagnet Volt: 12 1/min: 1125 3rd speed : 1.10...1.50 TD-travel mm: (1.00...1.60) difference Shutoff electromagnet Volt: 12 SP press.-dif.measurement: pompa di mandata (FP): 1st speed 1/min: 1125 Supply pump-: 0.10...0.30* pressure difference bar: (0.10...0.30) Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1st speed 1/min: 210 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 45.00...85.00 1000s.: (45.00...85.00)

1/min: 310 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 25.00...45.00 1000s.: (25.00...45.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 52.00...92.00 1000s.: (52.00...92.00) Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation mm: 3.2...3.4 KF mm: 5.3...5.7 MS mm: 1.3...1.7 mm: 3.0 mm: 17.0...19.0 SVS max. XK XL. mm: 8.7...12.1 Remarks: Overflow restriction 0.55 mm - Part No. ..303 On initial measurement, screw in residual-quantity adjusting screw 1 mm. Screw out residual-quantity adjusting screw 1 mm after setting pump.

Note inst. in remarks column

Test scheet : OPE

: 11.06.92 Edition replaces : 14.07.88 : ISO-4113 Calibrating oil

: VE4/9F2200L243-5 Injection pump Type number : 0 460 494 232

Customer Part-No. :

Customer-specific information

Customer : OPFL

Engine : 2,3+ ; OMEGA M. EGR

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil °C return temp.

with thermometer: 40...48 Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 000 assembly

Openina

bar: 147.00...150.00 Pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Indicator setting

Piston stroke mm: 1.0 Outlet

Injection-pump setting values Test specifications in parentheses

Timing device travel

Speed 1/min: 1200

Setting value mm: 4.30...4.70

AFB/AFB

valve Volt: 12 Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1200 Speed

Satting value bar: 4.00...4.60

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1200

Del. quantity cm3/

1000s.: 43.00...44.00

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Voit: 12 cm3/: 2.5 Dispersion

10003.: (3.0)

Low-idle speed regulation

1/min: 270 Speed

Del. quantity cm3/ 1000s.: 10.00...14.00

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.0 1000s.: (3.0)

Full-load speed regulation

1/min: 2450 Speed

Del. quantity cm3/

1000s.: 21.00...27.00

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 52.00...78.00 mind 1000s.: 52.00

KSB/AFB

Volt: 12 Valve

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement: -

1/min: 1200 Speed

Inj.-qty. cm3/TD travel mm: 2.80...5.20 difference 1000s.: 4.50...12.50 mm: (2.80...5.20) KSB/AFB Shutoff Volt: 12 valve electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Supply-pump pressure characteristic: TD-travel dif.measurement correttore anticipo iniezione (SV) 1.Speed 1/min: 1200 1st speed 1/min: 2200 Supply-pump bar: 6.50...7.10 TD-travel pressure difference mm: 0.50...0.70 KSB/AFB KSB/AFB valve Velt: 12 **Volt: 12** Shutoff valve Shutoff electromagnet Volt: 12 electromagnet Volt: 12 2nd speed 1/min: 1200 Supply-pump Inspection-pump test specifications pressure bar: 4.00...4.60 Test specifications in parentheses KSB/AFB Volt: 12 valve Timing-device characteristic: Shutoff electromagnet Volt: 12 3rd speed 1/min: 800 1/min: 2200 2nd speed rm: 9.10...9.90 TD travel Supply-pump mm: (8.80...10.20) pressure bar: 3.00...3.60 KSB/AFB KSB/AFB valve Volt: 12 Volt: 12 valve Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 1/min: 1200 3rd speed 4th speed 1/min: 600 mm: 4.30...4.70 TD travel Supply-pump mm: (3.80...5.20) bar: 2.40...3.00 pressure KSB/AFB KSB/AFB Volt: 12 valve Volt: 12 valve Shutoff **Shutoff** electromagnet Volt: 12 electromagnet Volt: 12 1/min: 800 4th speed TD travel mm: 1.90...2.70 Overlow quantity at overflow valve: mm: (1.60...3.00) KSB/AFB 1st speed 1/min: 600 Volt: 12 valve KSB/AFB Shutoff Volt: 12 valve electromagnet Volt: 12 Shutoff 1/min: 600 5th speed electromagnet Volt: 12 TD travel mm: 0.60...1.40 : 41.70...83.40 Overflow cm3/10s: (41.70...83.40) 1/min: 2200 mm: quantity KSB/AFB 2nd speed KSB/AFB valve Volt: 12 Shutoff Volt: 12 valve electromagnet Volt: 12 Shutoff 1/min: 1200 mm: 3.80...6.20 8th speed electromagnet Volt: 12 TD travel : 55.60...139.00 Overflow mm: (3.80...6.20) quantity cm3/10s: (55.60...139.00) Shutoff electromagnet Volt: 12 Delivery-quant. and breakaway char.: 9th speed 1/min: 300 mm: 2.70...4.30 TD travel mm: (2.50...4.50) 2nd speed 1/min: 2700 Shutoff KSB/AFB electromagnet Volt: 12 valve Volt: 12 10th speed 1/min: 800 Shutoff

Del. quantity cm3/: 52.00...78.00 1000s.: (52.00...78.00)

Shutoff electromagnet:

Cut-in

: 10.0 min voltage Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

mm: 3.2...3.4 mm: 5.6...6.0 mm: 1.8...2.0 mm: 17.0...19.0 mm: 9.2...12.6 mm: 37.9...39.9 mm: 36.6...42.0 KF MS XK XL Ya

Overflow restriction 0.55 mm - Part No. ...303

Note inst. in remarks column

Test scheet : REN

Edition : 16.06.92 replaces : 01.02.89 Calibrating oil : ISO-4113

Injection pump : VE4/9F2350R309-1

Type number : 0 460 494 247

Customer Part-No. :

Customer-specific information

Customer : RNUR

: J8s - 740 Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil •c return temp.

with thermometer: 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening |

bar: 130.00...133.00 Pressure

Test inj. tubing : motornah

Outside diameter : 6.00 x Wall thickness: 2.00 x Length mm: 450

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1125 Speed

Setting value mm: 2.60...3.00

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1125 Speed

Setting value bar: 4.20...4.80

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1125

Del. quantity cm3/ 1000s.: 36.00...37.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000s.: (3.0)

Residual-Delivery Setting

1/min: 500

Del. quantity cm3/

1000s.: 2.00...6.00

Shutoff

electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2500

Del. quantity cm3/

1000s.: 20.00...26.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 52.00...92.00

1000s.: 52.00 mind

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min: 1125 Charge press hPa: 12

Inj.-qty. cm3/

difference 1000s.: 11.00...15.00*

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV) 1.Speed 1/min: 1125

TD-travel

difference mm: 0.50...0.70*

Shutoff

electromagnet Volt: 12 SP press.-dif.measurement pompa di mandata (FP) 1.Speed 1/min: 1125

Supply pump

pressure

bar: 0.10...0.30# difference

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications 3rd speed 1/min: 2650 Test specifications in parentheses Shutoff Timing device characteristic: 2nd speed 1/min: 2000 5th speed ram: 7.10...7.90 mm: (6.80...8.20) TD travel Shutoff electromagnet Volt: 12
Del. quantity cm3/: 20.00...26.00
1000S.: (19.00...27.00)
9th speed 1/min: 2250 Shutoff electromagnet Volt: 12 1/min: 1125 mm: 2.60...3.00 3rd speed 9th speed TD travel Shutoff rm: (2.10...3.50) electromagnet Volt: 12 Del. quantity cm3/: 35.30...37.30 Shutoff electromagnet Volt: 12 4th speed 1/min: 800 1000s.: (34.00...38.60) 10th speed 1/min: 1750 mm: 0.70...1.50 TD travel Shutoff electromagnet Volt: 12 Del. quantity cm3/: 34.50...36.50 1000s.: (33.20...37.80) rim: (0.40...1.30) Shutoff electromagnet Volt: 12 1/min: 1125 12th speed Supply-pump pressure characteristic: Shutoff electromagnet Volt: 12
Del. quyntity cm3/: 36.00...37.00
1000s.: (34.20...38.80) 1/min: 300 1st speed Supply-pump bar: 3.10...3.70 20th speed 1/min: 800 pressure Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 34.10...37.10 1000s.: (33.30...37.90) electromagnet Volt: 12 1/min: 1125 2nd speed Supply-pump bar: 4.20...4.80 pressure Shutoff Mech. shutoff: electromagnet Volt: 12 1/min: 2000 3rd speed Electr. shutoff: Supply-pump bar: 6.50...7.10 1/min: 400 pressure 1st speed Shutoff Del. quantity cm3/: 0.00...3.00 electromagnet Volt: 12 1000s.: (0.00...3.00) Overlow quantity at overflow valve: Damper set qty.: 1st speed 1/min: 800 LFG-setting: Shutoff solidale con carcassa: electromagnet Volt: 12 Idle delivery: : 41.70...83.40 Overflow cm3/10s: (41.70...83.40) 1/min: 2250 quantity 1/min: 400 1st speed 2nd speed Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 Overflow: 55.60...139.00 Del. quantity cm3/: 6.00...10.00 1000s.: (4.00...12.00) cm3/10s: (55.60...139.00) quantity High Idle: Delivery quant. and breakaway char.: 1st speed 1/mi: 500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 8.50...12.50 1000S.: (6.50...14.50) 2nd speed 1/min: 2750 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...5.00 1000s.: (0.00...5.00)

Residual:

1/min: 500 1.Rotacao

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 2.00...6.00 1000s.: (2.00...6.00)

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1125 1st speed

Inj.-aty. cm3/ : 10.00..12.00# difference 1000s.: (10.00...12.00)

electromagnet Volt: 12 1/min: 1125 3rd speed

cm3/: 11.00..15.00* Inj.-qty.

difference 1000s.: (11.00...15.00)

Shutoff

electromagnet Volt: 12 5th speed 1/min: 1125 Inj.-qty. cm3/: 2.00...8.00'

difference 1000s.: (2.00...8.00)

Shutoff

electromagnet Volt: 12

TD-travel dif.measurement:

correttore anticipo iniezione (SV):

1st speed 1/min: 1125

TD-travel : 0.50...0.70* difference mm: (0.50...0.70)

Shutoff

electromagnet Volt: 12 3rd speed 1/min: 1125

: 1.10...1.50' TD-travel mm: (1.00...1.60) difference

Shutoff

electromagnet Volt: 12

SP press.-dif.measurement:

pompa di mandata (FP): 1/min: 1125 1st speed

Supply pump-

: 0.10...0.30# pressure difference bar: (0.10...0.30)

Shutoff

electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 210

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 45.00...85.00

1000s.: (45.00...85.00)

1/min: 310 2nd speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 25.00...45.00

1000s.: (25.00...45.00)

1/min: 100 4th speed

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 52.00...92.00

1000s.: (52.00...92.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

mm: 3.2...3.4 mm: 5.3...5.7 KF mm: 1.3...1.7 MS SVS max. mm: 3.0

Ya mm: 37.8...41.8 mm: 45.1...54.9 Yb

Remarks:

Overflow restriction 0.55 mm - Part No.

On initial measurement, screw in residual-quantity adjusting screw 1 mm.

Screw out residual-quantity adjusting screw 1 mm after setting pump.

Note inst. in remarks column

Test scheet : FIA : 16.06.92 Edition replaces : 11.05.89 : ISO-4113 Calibrating oil

: VE4/9F2100R303-1 Injection pump : 0 460 494 250 Type number

Customer-specific information Customer : FIAT-AUTO

: M710 CT 19.0 PRISMA Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 343

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder

assembly : 1 688 901 022

Openina

bar: 130...133 Pressure

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1500 Speed Charge press. hPa: 1000 Setting value mm: 6.00...6.40

AFB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1500 Speed Charge press hPa: 1000

Setting value bar: 5.60...6.20

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500 Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 53.00...54.00

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12 cm3/: 2.5 Dispersion 1000s.: (2.5)

Full-load del. w/out charge press.:

1/min: 600 Speed

Del. quantity cm3/

1000s.: 41.00...42.00

KSB/AFB valve Volt: 12

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 450 Speed

Del. quantity cm3/

1000s.: 11.00...15.00

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000s.: (2.5)

Residual-Delivery Setting

1/min: 700

Del. quantity cm3/

1000s.: 4.00...6.00

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2300 Speed Charge press hPa: 1000

Del. quantity cm3/

1000s.: 32.00...38.00

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12

Start: electromagnet Volt: 12 1/min: 800 3rd speed 1/min: 100 Speed hPa: 1000 Charge press Del. quantity cm3/: 50.00...80.00 mn: 1.90...2.70 TD travel 1000s.: 50.00 mm: (1.60...3.00) mind KSB/AFB KSB/AFB Volt: 12 Valve Volt: 12 valve Shutoff Shutoff electromagnet Volt: 12 4th speed 1/min: 1000 Charge press hPa: 1000 electromagnet Volt: 12 Load-dependent start of delivery: Inj.-qty.dif.measurement: mm: 3.50...6.50 TD travel mm: (3.50...6.50) 1/min: 1500 Speed Shutoff Inj.-qty. cm3/electromagnet Volt: 12 difference 1000s.: 5.00...7.00* 5th speed 1/min: 500 Charge press. hPa: 1000 KSB/AFB valve Volt: 12 TD travel mm: 3.90...5.50 mm: (3.20...6.20) Shutoff electromagnet Volt: 12 Shutoff TD-travel dif.measurement electromagnet Volt: 12 correttore anticipo iniezione (SV) 1/min: 1500 1.Speed Supply-pump pressure characteristic: TD-travel difference mm: 0.80...1.00# 1st speed 1/min: 2100 KSB/AFB Charge press. hPa: 1000 valve Volt: 12 Supply-pump Shutoff bar: 7.20...7.80 pressure electromagnet Volt: 12 SP press.—dif.measurement KSB/AFB valve Volt: 12 pompa di mandata (FP) Shutoff 1.Speed 1/min: 1500 electromagnet Volt: 12 Supply pump 1/min: 1500 2nd speed pressure Charge press. hPa: 1000 bar: 0.10...0.30* difference Supply-pump KSB/AFB bar: 5.60...6.20 pressure valve Volt: 12 KSB/AFB Shutoff valve Volt: 12 electromagnet Volt: 12 Shutoff electromagnet Volt: 12 1/min: 800 Inspection-pump test specifications 3rd speed Test specifications in parentheses Charge press. hPa: 1000 Supply-pump Timing-device characteristic: bar: 3.60...4.20 pressure KSB/AFB 1/min: 2100 1st speed Volt: 12 valve hPa: 1000 Charge press Shutoff TD travel mm: 8.60...9.40 electromagnet Volt: 12 mm: (8.30...9.70) KSB/AFB Overlow quantity at overflow valve: valve Volt: 12 electromagnet Volt: 12 1st speed 1/min: 800 1/min: 1500 2nd speed Charge press. hPa: 1000 hPa: 1000 Charge press KSB/AFB TD travel mm: 6.00...6.40 valve Volt: 12 mm: (5.70...6.70)Shutoff KSB/AFB electromagnet Volt: 12 : 90.30...131.90 valve Volt: 12 Overflow quantity cm3/10s: (90.30...131.90)

Shutoff

	d 1/min: press. hPa:		t	Del. quantity cm3/:	53.0054.00 (51.5055.50)
KSB/AFB			Ŧ	7th speed 1/min:	
valve Shutoff	Volt:	12	†	KSB/AFB valve Volt:	. 12
electrom	agnet Volt:	12	Ţ	valve Volt: Shutoff	12
Overflow		111.10194.40	1	electromagnet Volt:	12
quantity	cm3/10s:	(111.10194.40)	+	Del. quantity cm3/:	40.0042.00
Delivery	-ausnt and	breakaway char.:	İ	8th speed 1/min:	(38.5043.50)
		·	Ţ	Charge press. hPa: KSB/AFB	
find spee	d 1/min:	800	+	valve Volt:	12
unarge a	ir pressure	-setting	†	Shutoff	
	hPa:	400	+	electromagnet Volt:	12
LDA-stro	ke man:	6.2	+	Del. quantity cm3/:	
KSB/AFB			+	10 0 0s.:	-
valve	Volt:	12	1	9th speed 1/min:	
Shutoff		•	1	KSB/AFB	000
	agnet Volt:	12	ı i	valve Volt:	12
		53.5054.50	\mathbf{I}	Shutoff	14
ver. qua			T		40
2 4		(51.5056.50)	+	electromagnet Volt:	
	ed 1/min:		+	Del. quantity cm3/:	41.0042.00
Charge p	ress. hPa:	1000	+	1000s.:	(39.0044.00)
KSB/AFB			+		
valve	Volt:	12	1	Mech. shutoff:	
Shutoff	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	••	1	Ticorr. Singeotti.	
	name Valte	12	T	Elooka abukass.	
erectron	agnet Volt:	12	T	Electr. shutoff:	
vet. qua	ntity cms/:	0.007.00	+		
	1000s.:		+	1st speed 1/min:	
3rd spee	d 1/min:	2450	+	Del. quantity cm3/:	0.003.00
Charge p	ress. hPa:	1000	+	1000s.	(0.003.00)
KSB/AFB			1	KSB/AFB	
valve	Volt:	12	1	valve Volt:	12
Shutoff	voct.	16	1	varve vott.	12
	acmet Valte	12	Ŧ	Rompon out at.	
Act	magnet Volt:	42.00 20.00	T	Damper set qty.:	
vet. qua	ntity ms/:	12.0020.00	†		
		(11.0021.00)	+	LFG-setting:	
4th spee	d 1/min:	2300	+	solidale con carcas	ssa:
Charge p	ress. hPa:	1000	1	Idle delivery:	
KSB/AFB		, •••	1	223 234,10,70	
valve	Volt:	12	1	1st speed 1/min:	450
Shutoff	1000	12	1	KSB/AFB	70
	agnet Volt:	12	1	valve Volt:	12
			T		12
vet. qua		32.0038.00	Ť	Shutoff	••
		(31.0039.00)	+	electromagnet Volt:	
5th spee	d 1/min:	2100	+	Del. quantity cm3/:	11.0015.00
Charge p	ress. hPa:	1000	+	1000s.:	(9.5016.50)
KSB/ĀFB			1		2.5
valve	Volt:	12	1	1000S.:	(2.5)
Shutoff	vocc.	1 64	1	10005	(2.3)
	name tale.	10	T	المحمد المحمد	
	agnet Volt:		†	Residual:	
vet. qua		49.5052.50	†		
		(48.5053.50)	+	1.Rotacao 1/min:	700
6th spee	ed 1/min:	1500	+	KSB/AFB	
	ress. hPa:		+	valve Volt:	12
KSB/AFB			1	Shutoff	
valve	Volt:	12	1	· ·	12
	voce.	16	T	electromagnet Volt:	
Shutoff		42	†	Del. quantity cm3/:	
electron	magnet Volt:	72	+	1000s.:	(3.007.00)

1/min: 550 2nd speed KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.50...10.50 1000s.: -Load-dependent start of delivery: Inj.-qty.dif.measurement: 1/min: 1500 1st speed : 8.00...16.00# Inj.-qty. cm3/ difference 1000s.: (8.00...16.00) KSB/AFB Volt: 12 valve Shutoff electromagnet Volt: 12 1/min: 1500 cm3/: 5.00...7.00* 2nd speed Inj.-qty. difference 1000s.: -TD-travel dif.measurement: correttore anticipo iniezione (SV): 1/min: 1500 1st speed : 0.80...1.00# TD-travel difference mm: (0.80...1.00) KSB/AFB Volt: 12 valva Shutoff electromagnet Volt: 12 SP press.-dif.measurement: pompa di mandata (FP): 1st speed 1/min: 1500 Supply pump-: 0.10...0.30* pressure difference bar: -Automatic starting fuel delivery: 1/min: 220 1st speed KSB/AFB Volt: 12 valve Shutoff electromagnet Volt: 12 Del. quantity cm3/: 52.00...78.00 1000s.: (52.00...78.00) 1/min: 300 2nd speed KSB/AFB valve Volt: 12 Shutoff electromagnet Voit: 12 Del. quantity cm3/: 35.50...45.50 1000s.: (35.50...45.50) 1/min: 100 4th speed KSB/AFB

Volt: 12

Shutoff electromagnet Volt: 12 Del. quantity cm3/: 50.00...80.00 1000s.: (50.00...80.00) Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation mm: 3.2...3.4 KF mm: 5.6...6.0 mm: 1.0...1.4 MS LDA stroke ma: 6.2 mm: 18.8...20.8 XK XL mm: 10.0...13.4 Ya mm: 37.2...39.2 mm: 37.5...43.5 Overflow restriction 0.75 mm - Part No. ..343,..344 Operate control lever after each manifold-pressure compensator pressure change. * Correction at adjusting nut (46)

valve

Note inst. in remarks column

Test scheet : REN

Edition : 17.06.92 replaces : 01.02.89 Calibrating oil : ISO-4113

Injection pump : VE4/9F2350R309-2 : 0 460 494 251 Type number

Customer Part-No. :

Customer-specific information

Customer : RNUR

: J8S-736 u.740 Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening |

Pressure bar: 130.00...133.00

Test inj. tubing : motornah

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1125 Speed

Setting value mm: 2.60...3.00

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1125 Speed

Setting value bar: 4.20...4.80

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1125

Del. quantity cm3/ 1000s.: 36.00...37.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000s.: (3.0)

Residual-Delivery Setting

1/min: 500 Speed

Del. quantity cm3/

1000s.: 2.00...6.00

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2500

Del. quantity cm3/

1000s.: 20.00...26.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 52.00...92.00

1000s.: 52.00 mind

Shutoff

electromagnet Volum 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1125 Charge press hPa: 12

Inj.-qty. cm3/

difference 1000s.: 11.00...15.00'

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1/min: 1125 1.Speed

TD-travel

difference mm: 0.50...0.70'

Shutoff

electromagnet Volt: 12 SP press.—dif.measurement pompa di mandata (FP) 1.Speed 1/min: 1125

Supply pump pressure

difference

bar: 0.10...0.30*

Shutoff

electromagnet Volt: 12

Inspection pump test specifications 3rd speed 1/min: 2650 Test specifications in parentheses Shutoff Timing-device characteristic: 1/min: 2000 mm: 7.10...7.90 mm: (6.80...8.20) 2nd speed TD travel Shutoff Shutoff electromagnet Volt: 12
3rd speed 1/min: 1125
TD travel mm: 2.60...3.00 Shutoff mm: (2.10...3.50) Shutoff electromagnet Volt: 12 4th speed 1/min: 800 mm: 0.70...1.50 TD travel Shutoff ram: (0.40...1.30) Shutoff electromagnet Volt: 12 Supply-pump pressure characteristic: Shutoff 1/min: 800 1st speed Supply-pump pressure bar: 3.10...3.70 Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 34.10...37.10 1000s.: (33.30...37.90) electromagnet Volt: 12 1/min: 1125 2nd speed Supply-pump bar: 4.20...4.80 pressure Shutoff Mech. shutoff: electromagnet Volt: 12 3rd speed 1/min: 2000 Electr. shutoff: Supply-pump bar: 6.50...7.10 pressure 1st speed 1/min: 400 Del. quantity cm3/: 0.00...3.00 Shutoff 1000s.: (0.00...3.00) electromagnet Volt: 12 Overlow quantity at overflow valve: Damper set qty.: 1st speed 1/min: 800 LFG-setting: Shutoff solidale con carcassa: electromagnet Volt: 12 Idle delivery: : 41.70...83.40 Overflow cm3/10s: (41.70...83.40) 1/min: 2250 quantity 1st speed 1/min: 400 2nd speed Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 6.00...10.00 1000s.: (4.00...12.00) Dispersion cm3/: 2.5 electromagnet Volt: 12 : 55.60...139.00 Overflow cm3/10s: (55.60...139.00) quantity 1000s.: (3.0) Delivery-quant. and breakaway char.: High Idle: 1/min: 2750 2nd speed 1st speed 1/mi: 500 Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...5.00 1000S.: (0.00...5.00) electromagnet Volt: 12 Del. quantity cm3/: 8.50...12.50 1000s.: (6.50...14.50)

Residual:

1/min: 500 1.Rotacao

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.00...6.00 1000s.: (2.00...6.00)

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1st speed 1/min: 1125

Inj.-qty. cm3/ : 10.00..12.00* difference 1000s.: (10.00...12.00)

Shutoff

electromagnet Volt: 12 3rd speed 1/mig: 1125 Inj.-qty. cm3/: 11.00..15.00' difference 1000S.: (11.00...15.00)

Shutoff

electromagnet Volt: 12 5th speed 1/min: 1125

cm3/: 2.00...8.00# Inj. aty. difference 1000\$.: (2.00...8.00)

Shutoff

electromagnet Volt: 12

TD-travel dif.measurement:

correttore anticipo iniezione (SV): 1st speed 1/min: 1125

: 0.50...0.70' TD-travel mm: (0.50...0.70) difference

Shutoff

electromagnet Volt: 12 3rd speed 1/min: 1125

: 1.10...1.50# TD-travel difference mm: (1.00...1.60)

Shutoff

electromagnet Volt: 12

SP press.-dif.measurement:

pompa di mandata (FP): 1/min: 1125 1st speed

Supply pump-

: 0.10...0.30* pressure bar: (0.10...0.30) difference

Shutoff

electromagnet Volt: 12

Automatic starting fuel delivery:

1/min: 210 1st speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 45.00...85.00 1000s.: (45.00...85.00)

1/min: 310 2nd speed

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 25.00...45.00

1000s.: (25.00...45.00)

1/min: 100 4th speed

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 52.00...92.00 1000s.: (52.00...92.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0

: 12.0 Rated voltage

Mounting and assembly dimensions:

Designation

mm: 3.2...3.4 K mm: 5.3...5.7 mm: 1.3...1.7 KF MS

SVS max. mm: 2.3

mm: 37.8...41.8 Ya mm: 45.1...54.9 Yb

Remarks:

Overflow restriction 0.55 mm - Part No.

On initial measurement, screw in residual-quantity adjusting screw 1 mm.

Screw out residual-quantity adjusting screw 1 mm after setting pump.

Note inst. in remarks column

Test scheet : FIA

Edition : 12.06.92 replaces : 19.07.89 Calibrating oil : ISO-4113

Injection pump : VE4/9F2300R256-2 Type number : 0 460 494 253

Customer Part-No. :

Customer-specific information Customer : FIAT-AUTO

Engine : M705 LA 19.0

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 022

Opening

Pressure bar: 130.00...133.00

Test inj. tubing : motornah

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Start of delivery

Indicator setting
Piston stroke mm: 1.0
Outlet : A

Injection pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000

Setting value mm: 1.90...2.30

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500

Setting value bar: 5.30...5.90

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500

Del. quantity cm3/

1000s.: 28.00...29.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000s.: (2.5)

Low-idle speed regulation

Speed 1/min: 390

Del. quantity cm3/

1000s.: 10.00...14.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000S.: (2.5)

Full-load speed regulation

Speed 1/min: 2500

Del. quantity cm3/

1000s.: 18.50...24.50

Start:

Speed 1/min: 100

Del. quantity cm3/: 55.00...81.00

mind 1000s.: 55.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-aty.dif.measurement:

Speed 1/min: 1000 Charge press hPa: 12

Inj.-qty. cm3/

difference 1000s.: 8.00...14.00

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1.Speed 1/min: 1000

TD-travel

difference mm: 0.50...0.70

Shutoff

electromagnet Volt: 12

Inspection pump test specifications Test specifications in parentheses

liming-device character	ristic:		
2nd speed 1/min: 230	m I	2nd speed 1/min:	2900
TD travel mm: 7.8	808.60	Shutoff	2700
	.508.90)	electromagnet Volt:	12
Shutoff	I	Del. quantity cm3/:	יניטט אינט
electromagnet Volt: 12	T	100cc	(0.006.00)
3rd speed 1/min: 100		Zud annud 1/min.	2450
	902.30	3rd speed 1/min:	2000
		Shutoff	40
	.402.80)	electromagnet Volt:	
Shutoff	†	Del. quantity cm3/:	
electromagnet Volt: 12			(3.0013.00)
4th speed 1/min: 800	U +	5th speed 1/min:	2500
	101.90	Shutoff	
	.802.20)	electromagnet Volt:	12
Shutoff	+	Del. quantity cm3/:	18.5024.50
electromagnet Volt: 12		1000s.:	(17.5025.50)
5th speed 1/min: 200		9th speed 1/min:	2300
TD travel mm: 6.6	607.40	Shutoff	
mm: (6.	.207.80)	electromagnet Volt:	12
Shutoff	1	Del. quantity cm3/:	
electromagnet Volt: 12	4	1000s.:	(28.2032.80)
6th speed 1/min: 150		10th speed 1/min:	1000
TD travel mm: 4.2	205.00	Shutoff	1000
	.905.30)	electromagnet Volt:	12
Shutoff	1	Del. quantity cm3/:	27 20 30 20
electromagnet Volt: 12		1000c	(26.7031.30)
etectrollagiet vott. 12	Ţ	12th speed 1/min:	1500 (031,30)
Simplianism processo of	hanastanistia		נטכו
Supply-pump pressure ch	maracteristic:	Shutoff	40
1 mb man and 1 /min . 276	~	electromagnet Volt:	
1st speed 1/min: 230	w †	Del. quyntity cm3/:	28.0029.00
Supply-pump	40 7 70 †		(26.2030.80)
•	107.70	20th speed 1/min:	600
Shutoff	+	Shutoff	
electromagnet Volt: 12		electromagnet Volt:	
2nd speed 1/min: 150	00 +	Del. quantity cm3/:	28.9031.90
Supply-pump	+	1000s.:	(27.4033.40)
	305.90		
Shutoff	+	Mech. shutoff:	
electromagnet Volt: 12	+		
3rd speed 1/min: 600	0 1	Electr. shutoff:	
Supply-pump	4		
	103.70	1st speed 1/min:	390
Shutoff	1	Del. quantity cm3/:	
electromagnet Volt: 12	1	10005	(0.003.00)
	1	10000	(0.005.00)
Overlow quantity at over	erflow valve:	Idle delivery:	
over con quarter ty at ore	1	rate detivery.	
1st speed 1/min: 600	n I	1st speed 1/min:	700
Shutoff	Ч — Т		370
	†	Shutoff	45
electromagnet Volt: 12		electromagnet Volt:	
Overflow : 41.	.7083.40	Del. quantity cm3/:	
quantity cm3/10s: (4)			(7.0017.00)
2nd speed 1/min: 230	+	Dispersion cm3/:	
Shutoff	+	1000s.:	
electromagnet Volt: 12		2nd speed 1/min:	440
	.60139.00	Shutoff	
quantity cm3/10s: (55	5.60139.00) +	electromagnet Volt:	
	+	Del. quantity cm3/:	0.006.00
Delivery-quant, and hre	eakaway char · 1	10000	(0.00 ± 0.00)

1/min: 500 4th speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Load-dependent start of delivery: Inj.-qty.dif.measurement: 3rd speed 1/min: 1000 cm3/: 8.00...14.00 Inj.-qty. cm3/: 8.00...14.00 difference 1000S.: (8.00...14.00) Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1/min: 1000 1st speed : 0.50...0.70 TD-trave: difference mm: (0.50...0.70) Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1/min: 300 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 48.00...74.00 1000s.: (48.00...74.00) 2nd speed 1/min: 400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 35.00...45.00 1000s.: (35.00...45.00) 1/min: 100 4th speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 55.00...81.00 1000s.: (55.00...81.00) Shutoff electromagnet: Cut-in min voltage : 10.0 : 12.0 Rated voltage Mounting and assembly dimensions: Designation mm: 5.6...6.0 K KF mm: 3.2...3.4 MS mm: 1.6...2.0 mm: 37.2...39.2 Ya mm: 47.6...56.0 Remarks:

Note inst. in remarks column

Test scheet : PEU Edition : 03.03.92 replaces : 03.10.86 Calibrating oil : ISO4113

Injection pump : VE4/9F2075R126 Type number : 0 460 494 121

Customer-specific information Customer : PEUGEOT

Engine : XD 3s

TEST BENCH REQUIREMENT'S

Overflow restricti: 1 463 456 303

Calibrating oil return temo. with thermometer : 40...48

Electronically : 42...50

Inlet press., bar: 0.35

Calibrating nozzle-holder

assembly : 1 688 901 022

Opening

Pressure bar: 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Injection pump setting values Test specifications in parentheses

Timing device travel

Speed 1/min: 1500 Charge press. hPa: 800

Setting value mm: 5.80...6.20

Supply-pump pressure

Speed 1/min: 1500 Charge press hPa: 800

Setting value bar: 5.60...6.20

Full-load del. with charge press.:

1/min: 1500 Speed

Charge press. hPa: 800

Del. quantity cm3/ 1000s.: 53.50...54.50

cm3/: 2.0Dispersion 1000s.: -

Full-load del. w/out charge press.:

Speed 1/min: 500

Del. quantity cm3/

1000s.: 40.00...41.00

Low-idle speed regulation

1/min: 350

Del. quantity cm3/

1000s.: 20.00...24.00 Del. quantity cm3/: 2.0 1000s.: -

Full-load speed regulation

Speed 1/min: 2300 Charge press hPa: 800

Del. quantity cm3/

1000s.: 26.50...32.50

Start:

Speed 1/min: 100 Del. quantity cm3/: 67.00 mind 1000s.: -

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750 hPa: 800 Charge press

TD travel mm: 0.80...1.60 mm: (0.00...2.40)

2nd speed 1/min: 1000 Charge press hPa: 800

TD travel mm: 2.50...3.30

mm: (2.20...3.60)

1/min: 1500 3rd speed Charge press hPa: 800

mm: 5.80...6.20 TD travel mm: (5.00...7.00) 1/min: 2000

4th speed hPa: 800 Charge press

TD travel mm: 7.80...8.60

mm: (7.00...9.40)

Supply-pump pressure characteristic:

1st speed 1/min: 750 Charge press. hPa: 800

Supply-pump bar: 3.40...4.00 1/min: 1500 pressure 2nd speed Charge press. hPa: 800 Supply-pump bar: 5.60...6.20 pressure 3rd speed 1/min: 2000 Charge press. hPa: 800 Supply-pump bar: 7.10...7.70 pressure Overlow quantity at overflow valve: 1st speed 1/min: 500 : 41.60...83.30 Overflow cm3/10s: (26.60...98.30) quantity 1/min: 2075 2nd sneed Charge press. hPa: 800 : 55.50...138.80 Overflow cm3/10s: (40.50...153.80) quantity Delivery-quant. and breakaway char.: 1nd speed 1/min: 750 Charge-air pressure-setting hPa: 300 point LDA-stroke mm: 4.5 Del. quantity cm3/: 47.50...48.50 1000s.: (43.00...52.00) 1/min: 2600 2nd speed Charge press. hPa: 800 Del. quantity cm3/: 0.00...3.00 1000s.: -1/min: 2300 3rd speed Charge press. hPa: 800 Del. quantity cm3/: 26.50...32.50 1000s.: (21.50...37.50) 1/min: 2200 4th speed Charge press. hPa: 800 Del. quantity cm3/: 40.50...46.50 1000s.: (35.50...51.50) 5th speed 1/min: 2000 Charge press. hPa: 800 Del. quantity cm3/: 51.20...53.20 1000s.: (47.70...56.70) Damper set qty.: Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB 2,5 W39 Edition : 08.10.91 Replaces Test oil : ISO-4113 Combination no. : 0 400 075 929 Injection pump Pump designation : PES5M55C32ORS177 EP type number : 0 410 055 974 Governor Governor design. : RSF340/2300M64-18 Governer no. : 0 420 021 159 Cust. part no. : 13 Customer-spec. information Customer : MB-PKW Engine : OM602A-USA 1st version kW : 92.0 TEST BENCH REQUIREMENTS Test oil : 38...42 inlet temp. °C Overflow valve : 1 469 990 351 Inlet press., bar: 1.00 Test nozzle holder : 0 681 343 009 assembly Opening : 172...175 pressure, bar Test lines : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 30...32

Rack travel in mm : 20.00...22.00 Firing order : 1-2-4-5-3 Phasing : 0-72-144-216-288 Tolerance + - ° : 0.00 (1.00) Time to cyl. no. : 1 EASIC SETTING 1st speed rpm: 1000 Rack travel in mm : 13.70...13.80 Del.quantity cm3/ : 5.1...5.2 100 s: (5.0...5.3) cm3 : 0.2Spread 100 s: (0.3) 2nd speed rpm : 315.0 Rack travel in mm : 5.4...5.6 Del.quantity cm3/ : 0.5...9.6 100 s: (0.4...0.85) Spread cm3 : 0.1100 s: (0.15) FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1000 Aneroid pressure h: 1850 : 51.0...52.0 Del.quantity 1000 : (50.0...53.0) : 2.50 Spread cm3 1000 : (3.00) RATED SPEED 1st version Control lever position degrees: 50...0 3rd rack travel in: 8,5..8,9 rpm : 2500 Speed 4th rack travel in: 2950 : 0.00...1.00 Speed rpm SET IDLE CONTROL LEVER POSITION : 1000 rom Rack travel in mm : 1,7...1,8 LOW IDLE 1 Control lever

Prestroke mm

: 1.70...1.80

: (1.65...1.85)

position degrees: 812 Setting point w/out bumper spring Speed rpm : 315 Rack travel in mm : 5.5 Testing: Speed rpm : 220 Minimum rack trave: 8.00	+ + + + + + + + + + + + + + + + + + + +	Del.quantity cm3/: 48.550.5 1000 s: (47.551.5) Spread cm3 : 2.50 1000 s: (3.00) Aneroid pressure h: 1050 Speed rpm : 1000 Del.quantity cm3/: 33.034.0 1000 s: (32.035.0)
Speed rpm: 315 Rack travel in mm: 5.405.60 Rack travel in mm: 2.50 Speed rpm: 520620 Speed rpm: 1000 Maximum rack trave: 1.80	++++++	Spread cm3 : 2.50 1000 s: (3.00) STARTING FUEL DELIVERY
SET IDLE AUXILIARY SPRING Speed rpm : 380 Rack travel in mm : 4,24,4 : (4,14,5)	+++++++++++++++++++++++++++++++++++++++	Speed rpm: 100 Del.quantity cm3/: 52.00.0 1000 s: (52.00.0) Rack travel in mm: 20.100.00
TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 13.7013.80 2nd speed rpm : 1600 Rack travel in m: 13.0013.20 3rd speed rpm : 2200 Rack travel in m: 12.2012.40 Aneroid/Altitude	+++++++++++++++++++++++++++++++++++++++	HIGH IDLE 1st version Aneroid pressure h: 1850 Speed rpm : 2500 Rack travel in mm : 8.508.90 Del.quantity cm3/ : 29.033.0 1000 s: (28.034.0) Spread cm3 : 2.50 1000 s: (3.00)
Compensator Test	Ţ	LOW IDLE
1st version Setting Speed rpm : 1000 Pressure hPa : 1600 Rack travel mm : 0.300.70	+++++++++++++++++++++++++++++++++++++++	Speed rpm: 315 Rack travel in mm: 5.405.60 Del.quantity cm3/: 5.06.0 1000 s: (4.08.5) Spread cm3: 1.00 1000 s: (1.50)
Measurement Speed 1/min: 1000 1st pressure hPa: 1050	+++++++++++++++++++++++++++++++++++++++	SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)
Rack travel in m: 3.403.60 2nd pressure hPa : 750 Rack travel in m: 4.905.30 FUEL DELIVERY CHARACTERISTICS	T + + +	Control lever at idle stop Speed rpm : 340 Rack travel in mm : (12.714.1)
1st version	Ī	Del.quantity cm3/: - 1000 s: (41.049.0) Current A : 1.8
Aneroid pressure h: 1850 Speed rpm : 1600 Del.quantity cm3/ : 49.551.0 1000 s: (48.552.0) Spread cm3 : 2.50 1000 s: (3.0)	+++++++++++++++++++++++++++++++++++++++	Control lever at full-load stop Speed rpm : 2950 Rack travel in mm : 0.01.0 Current short-duration A : 3.0
Aneroid pressure h: 1850 Speed rpm : 2200	<u> </u>	Starting test Speed rpm : 100 Del.quantity cm3/ : - min. 1000 s: 52.0 1,8A

Remarks:

Sliding sleeve pre-travel = 6.5 mm

CHECKING THE IDLE—SPEED AUXILIARY SPRING CUTOFF
—Control—lever position 35,5°, max.
0.2 mm control—rod travel deduction allowable after switchover point (of starting cam) up to 1000 1/min.
—Control—lever position 33.0°, control—rod travel deduction must be greater than 0.2 mm after switchover point (of starting cam).

TESTING PNEUMATIC SHUTOFF DEVICE
-Control lever at idle stop.
With n = 315 1/min. and pu = 450 mbar,
control rod must move quickly to
control-rod travel = 0 mm

Start-of-delivery sensor system: adjustment and blocking with device KDEP 1077 = 17.3°...17.7° (17.2...17.8°) angular displacement of cam following start of delivery of cylinder no. 1.

Pin projection = 16.60...16.70 mm

CURRECTION OF INJECTED-FUEL QUANTITY -Set max. change plus/minus 0.75 mm control-rod travel at correction screw on ALDA pressure box.

Testing and adjusting the control-rodtravel sensor with evaluation circuit KDEP P400 Receiving inspection Shift control lever to full-load stop.

Shift control lever to full-load stop. Set 13.5 V at stabilizer. Apply 1850 hPa to ALDA. Run up to speed of 1000 1/min; a voltage of 2.457...2.517 (2.427...2.547) V must be displayed on the digital voltmeter.

Adjustment of the control-rod travel sensor

At a speed of 1000 1/min, set fuel delivery at 21.0...22.0 (20.0...23.0) ccm/1000 strokes with control lever. Shift control-rod-travel sensor until U = 1.633...1.639 (1.635...1.637) V is indicated. Tighten fastening screws

with 1...2 Nm. Control lever to full-load stop; voltage value of 2.457... 2.517 V must be attained.

Rack travel in mm : 20.00...22.00 BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-2-4-5-3 Note remarks Test sheet : MB Edition : 08.07.92 Phasing : 0-72-144-216-288 Replaces : 17.02.89 Tolerance $+ - ^{\circ} : 0.00 (1.00)$ Test oil : ISO-4113 Combination no. : 0 400 075 959 Time to cyl. no. : 1 Injection pump BASIC SETTING Pump designation : PES5M55C32ORS166 EP type number : 0 410 055 980 1st speed rpm: 1000 Governor Governor design. : RSF340/2300M64-1 Rack travel in mm : 14.00...14.10 : 0 420 021 050 Governer no. Del.quantity cm3/: 5.1...5.2 Cust. part no. : T3 100 s: (5.0...5.3) Customer-spec. information : MB-PKW Customer Spread cm3 : 0.2Engine : 0M602A 100 s: (0.3) 1st version kW : 92.0 rpm : 315.02nd speed Rack travel in mm: 4.9...5.1 TEST BENCH REQUIREMENTS Del.quantity cm3/: 0.5...0.6 100 s: (0.4...0.8) Test oil cm3 : 0.1Spread inlet temp. °C : 38...42 100 s: (0.15) Overflow valve FULL LOAD DELIV. AT FULL LOAD STOP : 1 469 990 351 1st version Inlet press., bar: 1.00 Speed rpm : 1000 Aneroid pressure h: 1850 Test nozzle holder : 51.0...52.0 Del.quantity : 0 681 343 009 1000 : (50.0...53.0) assembly : 2.50 Spread cm3 1000 : (3.00) Opening pressure, bar : 172...175 RATED SPEED Test lines : 1 680 750 014 1st version Control lever Outside diameter position degrees: 50...0 x Wall thickness 3rd rack travel in: 8.1...8.5 : 6.00x2.00x600 x Length mm rpm : 2500 Speed 4th rack travel in: 2950 (A) Injection pump setting values : 0.00...1.00 rpm Speed Insp. values in parentheses Set equal delivery quant. SET IDLE CONTROL LEVER per values POSITION BEGINNING OF DELIVERY rpm : 1000 Speed Test pressure, bar: 30...32 Rack travel in mm: 1,7...1,8

LOW IDLE 1

Control lever

Prestroke mm

: 1.70...1.80

: (1.65...1.85)

position degrees: 8...12 Del.quantity cm3/: 48.5...50.5 Setting point w/out bumper spring 1000 s: (47.5...51.5) rom cm3 : 2.50 Spread Rack travel in mm: 5.0 1000 s: (3.00) Aneroid pressure h: 1050 Speed rpm : 1000 Del.quantity cm3/ : 33.0...34.0 1000 s: (32.0...35.0) Testing: Speed nom : 220 Minimum rack trave: 8.00 : 315 cm3 : 2.50 Speed rpm Spread Rack travel in mm : 4.90...5.10 1000 s: (3.00) Rack travel in mm: 2.50 : 525...625 Speed n:On Speed rpm : 1000 STARTING FUEL DELIVERY Maximum rack trave: 1.80 Speed rpm : 100 Del.quantity cm3/ : 52.0...0.0 SET IDLE AUXILIARY SPRING rpm : 380 Speed Rack travel in mm : 4.20...4.40 1000 s: (52.0...0.0) : (4.10...4.50) Rack travel in mm : 20.10...0.00 TORQUE CONTROL HIGH IDLE Torque control curve - 1st version 1st speed rpm : 1000 1st version Rack travel in m: 14.00...14.10 Aneroid pressure h: 1850 2nd speed rpm : 1600 rpm : 2500 Speed Rack travel in m: 13.30...13.50 3rd speed rpm : 2200 Rack travel in mm : 8.10...8.50 Del.quantity cm3/: 31.0...35.0 Rack travel in m: 12.80...13.00 1000 s: (30.0...36.0) cm3 : 2.50 Spread Aneroid/Altitude 1000 s: (3.00) Compensator Test LOW IDLE 1st version Speed rpm : 315 Rack travel in mm : 4.90...5.10 Setting Del.quantity cm3/: 5.0...6.0 : 1000 Speed rom hPa : 1600 Pressure 1000 s: (4.0...8.5) Rack travel mm : 0.50...0.90 Spread cm3 : 1.001000 s: (1.50) Measurement 1/min: 1000 Speed SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR) 1st pressure hPa : 1050 Rack travel in m: 3.90...4.10 2nd pressure hPa : 750 Control lever at idle stop Rack travel in m: 5.80...6.20 rpm : 340 Speed Rack travel in mm : (12.4...13.8) FUEL DELIVERY CHARACTERISTICS Del.quantity cm3/: -1000 s: (41.0...49.0) Current A : 1.8 1st version Aneroid pressure h: 1850 Control lever at full-load stop : 1600 Speed rpm Speed rpm : 2950 Del.quantity cm3/: 50.0...51.5 Rack travel in mm: 0.0...1.0 1000 s: (49.0...52.5) cm3 : 2.50 1000 s: (3.00) Current Spread short-duration A: 3.0 Starting test Aneroid pressure h: 1850 Speed rpm : 100 : 2200 Del.quantity cm3/:-Speed rpm 1000 s: 52.0 / 1,8A

Pin projection = 16.60...16.70 mm

Remarks:

Sliding sleeve pre-travel = 6.5 mm

CHECKING THE IDLE—SPEED AUXILIARY SPRING CUTOFF
—Control—lever position 49°, max.

0.2 mm control—rod travel deduction allowable after switchover point (of starting cam) up to 1000 1/min.

Control—lever position 46.5°, control—rod travel deduction must be greater than 0.2 mm after switchover point (of starting cam).

TESTING PNEUMATIC SHUTOFF DEVICE -Control lever at idle stop. With n = 315 1/min. and pu = 450 mbar, control rod must move quickly to control-rod travel = 0 mm

Start-of-delivery sensor system: adjustment and blocking with device KDEP 1077 = 19.3°...19.7° (19.2...19.8°) angular displacement of cam following start of delivery of cylinder no. 1. Difference in start of delivery between max. and min. value = max. 1° angular displacement of cam

Testing and adjusting the control-rodtravel sensor with evaluation circuit KDEP-P400

Receiving inspection
Shift control lever to full-load stop.
Set 13.5 V at stabilizer. Apply
1850 hPa to ALDA. Run up to speed of
1000 1/min; a voltage of 2,531...2,590
(2,502...2,620) V must be displayed
on the digital voltmeter.

Adjustment of the control-rod travel sensor

At a speed of 1000 1/min, set fuel delivery at 18,5...19,5 (17,5...20,5) ccm/1000 strokes with control lever. Shift control-rod-travel sensor until U = 1.633...1.639 (1.635...1.637) V is indicated. Tighten fastening screws with 1...2 Nm. Control lever to full-load stop; voltage value of 2,531... 2,590 V must be attained.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

: MB Test sheet

: 08.07.92 Edition : 17.02.89 Replaces Test oil : ISO-4113

Combination no. : 0 400 075 980

Injection pump

Pump designation : PES5M55C32ORS158 EP type number : 0 410 055 986

Governor

Governor design.: RSF340/2300M64 Governer no. : 0 420 021 050

Cust. part no. : 13

Customer-spec. information Customer : MB-PKW

: 0M602A / ALDA Engine

1st version kW : 92.0

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 469 990 351

Inlet press., bar: 1.00

Test nozzle holder

assembly : 0 681 343 009

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 2.20...2.30 Prestroke mm

: (2.15...2.35)

Rack travel in mm : 20.00...22.00

: 1-2-4-5-3 Firing order

Phasina : 0-72-144-216-288

Tolerance + - ° : 0.00 (1.00)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 13.90...14.00

Del.quantity cm3/ : 5.1...5.2

100 s: (5.0...5.3)

Spread cm3 : 0.2

100 s: (0.3)

2nd speed rpm : 315.0 Rack travel in mm : 5.4...5.6 Del.quantity cm3/ : 0.5...0.6

100 s: (0.4...0.9)

Spread cm3 : 0.1100 s: (0.1)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed Aneroid pressure h: 1850

Del.quantity : 51.0...52.0 1000 : (50.0...53.0)

: 2.50 cm3 Spread

1000 : (3.00)

RATED SPEED

1st version

Control lever

position degrees: 50...0 3rd rack travel in: 8.1...8.5

Speed rpm : 2500 4th rack travel in: 2950

: 0.00...1.00 Speed rpm

SET IDLE CONTROL LEVER POSITION

: 1000 Speed rpm

Rack travel in mm: 1.7...1.8

LOW IDLE 1 Control lever

position degrees: 8...12 Del.quantity cm3/: 48.5...50.5 Setting point wout bumper spring 1000 s: (47.5...51.5) rpm : 315 Spread cm3 : 2.501000 s: (3.00) Rack travel in mm: 5.5 Aneroid pressure h: 1050 Testing: : 1000 Speed rpm Dei.quantity cm3/: 33.0...34.0 Speed : 220 mpin . Minimum rack trave: 8.00 1000 s: (32.0...35.0) rpm : 315 Speed cm3 : 2.50Spread Rack travel in mm : 5.40...5.60 1000 s: (3.00) Rack travel in mm: 2.50 : 540...640 Speed rpm Speed rpm : 1000 STARTING FUEL DELIVERY Maximum rack trave: 1.80 SET IDLE AUXILIARY SPRING : 100 Speed rpm Del.quantity cm3/: 52.0...0.0 1000 s: (52.0...0.0) Rack travel in mm: 20.10...0.00 rpm : 380 Speed Rack travel in mm : 4.20...4.40 : (4.10...4.50) TORQUE CONTROL HIGH IDLE Torque control curve - 1st version rpm : 1000 1st speed 1st version Rack travel in m: 13.90...14.00 Aneroid pressure h: 1850 2nd speed rpm : 1600 Speed rpm : 2500 Rack travel in m: 13.20...13.40 Rack travel in mm: 8.10...8.50 3rd speed rpm : 2200 Del.quantity cm3/: 29.0...33.0 Rack travel in m: 12.30...12.50 1000 s: (28.0...34.0) cm3 : 2.50Spread Aneroid/Altitude 1000 s: (3.00) Compensator Test LOW IDLE 1st version rpm : 315 Speed Setting Rack travel in mm : 5.40...5.60 : 1000 Del.quantity cm3/ : 5.5...6.5 Speed rpm Pressure hPa : 1600 1000 s: (4.5...9.0) : 0.50...0.90 Rack travel mm cm3 : 1.00Spread 1000 s: (1.50) Measurement 1/min: 1000 Speed SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR) 1st pressure hPa : 1050 Rack travel in m: 3.90...4.10 2nd pressure hPa : 750 Control lever at idle stop Rack travel in m: 5.80...6.20 Speed rpm : 340 Rack travel in mm : (12.4...13.8) FUEL DELIVERY CHARACTERISTICS Del.quantity cm3/:-1000 s: (41.0...49.0) Current A 1st version Aneroid pressure h: 1850 Control lever at full-load stop Speed rpm : 1600 rpm : 2950 Speed Del.quantity cm3/: 50.0...51.5 Rack travel in mm: 0.0...1.0 1000 s: (49.0...52.5) cm3 : 2.50 Current Spread short-duration A: 3.0 1000 s: (3.00) Starting test Aneroid pressure h: 1850 Speed rpm : 100 Speed : 2200 Del.quantity cm3/:rpm 1000 s: 52.0 / 1.8A min.

Oin projection = 15.60...16.70 mm

Remarks:

Sliding sleeve pre-travel = 6.5 mm

CHECKING THE IDLE-SPEED AUXILIARY SPRING CUTOFF
-Control-lever position 49°, max.
0.2 mm control-rod travel deduction allowable after switchover point (of starting cam) up to 1000 1/min.
Control-lever position 46.5°, control-rod travel deduction must be greater than 0.2 mm after switchover point (of starting cam).

TESTING PNEUMATIC SHUTOFF DEVICE
-Control lever at idle stop.
With n = 315 1/min. and pu = 450 mbar,
control rod must move quickly to
control-rod travel = 0 mm

Start-of-delivery sensor system: adjustment and blocking with device KDEP 1077 = 19.3°...19.7° (19.2...19.8°) angular displacement of cam following start of delivery of cylinder no. 1.

Difference in start of delivery between max. and min. value = max. 1° angular displacement of cam

Testing and adjusting the control-rod-travel sensor with evaluation circuit KDEP-P400
Receiving inspection
Shift control lever to full-load stop.
Set 13.5 V at stabilizer. Apply 1850 hPa to ALDA. Run up to speed of 1000 1/min; a voltage of 2.472...2.532 (2.442...2.562) V must be displayed on the digital voltmeter.

Adjustment of the control-rod travel sensor

At a speed of 1000 1/min, set fuel delivery at 23.0...24.0 (22.0...25.0) ccm/1000 strokes with control lever. Shift control-rod-travel sensor until U = 1.633...1.639 (1.635...1.637) V is indicated. Tighten fastening screws with 1...2 Nm. Control lever to full-load stop; voltage value of 2.472... 2.532 V must be attained.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet

Edition

: 08.07.92

Replaces

: 07.11.85

Test oil

: ISO-4113

Combination no.

: 0 400 076 980

Injection puno

Pump designation : PES6M55C32ORS157

EP type number

: 0 410 056 993

Governor

Governor design. : RSF315/2300M64-10

Governer no.

: 0 420 021 085

Customer-spec. information Customer

: MB-PKW

Engine

: OM603A / ALDA

1st version kW

: 110.0

TEST BENCH REQUIREMENTS

Test cil

inlet temp. °C

: 38...42

Overflow valve

: 1 469 990 351

Inlet press., bar: 1.00

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test Lines

: 1 680 750 014

Outside diameter

x Wall thickness

x Length mm

: 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 2.20...2.30

Rack travel in mm : 20.00...22.00

: (2.15...2.35)

Firing order

: 1-5-3-6-

L14

Phasing : 0-60-120-180-240-300

Tolerance + - °

: 0.00 (1.00)

Time to cyl. no. : 1

BASIC SETTING

1st speed

rom: 1000

Rack travel in mm : 13.90...14.00

Del.quantity cm3/: 5.1...5.2

100 s: (5.0...5.3)

Spread

cm3 : 0.2

100 s: (0.3)

rpm : 290.0 2nd speed

Rack travel in mm: 5.3...5.5

Del.quantity cm3/: 0.5...0.6

100 s: (0.5...0.9)

Spread

cm3 : 0.1

100 s: (0.15)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Spead

rpm : 1000

Aneroid pressure h: 1850 Aneroid F. Del.quantity 1000

: 51.0...52.0

: (50.0...53.0)

: 2.50 cm3 Spread

1000 : (3.00)

RATED SPEED

1st version

Control lever

position degrees: 50...0

3rd rack travel in: 8.1...8.5

Speed

rpm : 2500

4th rack travel in: 2950

: 0.00...1.00 Speed rpm

SET IDLE CONTROL LEVER

POSITION

Speed

rpm : 1000

Rack travel in mm: 1.7...1.8

LOW IDLE 1

Control lever

position degrees: 8...12

Setting point w/out bumper spring

: 290 Speed MC Aneroid pressure h: 1050 Rack travel in mm: 5.4 rpm : 1000 Speed Del.quantity cm3/: 33.0...34.0 Testing: 1**000** s: (32.0...35.0) : 200 Speed cm3 : 2.50 man Spread Minimum rack trave: 7.00 1000 s: (3.00) : 290 Speed rpm Rack travel in mm : 5.30...5.50 Rack travel in mm: 2.50 STARTING FUEL DELIVERY : 510...610 Speed rpm rpm : 1000 Speed Speed rpm : 100 Del.quantity cm3/ : 52.0...0.0 1000 s: (52.0...0.0) Maximum rack trave: 1.80 SET IDLE AUXILIARY SPRING Speed rpm : 1000 Rack travel in mm : 20.10...0.00 Rack travel in mm: 1.7...1.8 HIGH IDLE TORQUE CONTROL Torque control curve - 1st version 1st version 1st speed rpm : 1000 Aneroid pressure h: 1850 Rack travel in m: 13.90...14.00 Speed rpm : 2500 2nd speed npm : 1600 Rack travel in mm : 8.10...8.50 Del.quantity cm3/: 29.0...33.0 1000 s: (28.0...34.0) Rack travel in m: 13.20...13.40 3rd speed rpm : 2200 Rack travel in m: 12.30...12.50 cm3 : 2.50 Spread 1000 s: (3.00) Ameroid/Altitude Compensator Test LOW IDLE rpm : 290 Speed 1st version Rack travel in mm : 5.30...5.50 Del.quantity cm3/: 5.5...6.5 1000 s: (5.0...9.5) Setting Speed rpm : 1000 cm3 : 1.00 1000 s: (1.50) hPa : 1600 Pressure Spread Rack travel mm : 0.50...0.90 Measurement SETTING/TESTING ELECTRONIC IDLE Speed 1/min: 1000 REGULATION (ELR) 1st pressure hPa : 1050 Rack travel in m: 3.90...4.10 Control lever at idle stop 2nd pressure hPa : 750 rpm : 315 Rack travel in m: 5.80...6.20 Rack travel in mm : (12.8...14.2) Del.quantity cm3/: -1000 s: (42.0...49.9) FUEL DELIVERY CHARACTERISTICS Current A 1st version Control lever at full-load stop : 2950 Aneroid pressure h: 1850 rpm Speed : 1600 Rack travel in mm: 0.0...1.0 Speed rpm Del.quantity cm3/ : 50.0...51.5 Current 1000 s: (49.0...52.5) short-duration A: 3.0 cm3 : 2.50Spread Starting test 1000 s: (3.00) Speed : 100 rpm Del.quantity cm3/: -min. 1000 s: 52.0 / 1.8A Aneroid pressure h: 1850 : 2200 Speed rpm Del.quantity cm3/: 48.5...50.5 1000 s: (47.5...51.5) Spread cm3 : 2.50 1000 s: (3.00) Remarks: :

Sliding sleeve pre-travel = 6.5 mm

CHECKING THE IDLE—SPEED AUXILIARY SPRING CUTOFF
—Control—lever position 49°, max.
0.2 mm control—rod travel deduction allowable after switchover point (of starting cam) up to 1000 1/min.
Control—lever position 46.5°, control—rod travel deduction must be greater than 0.2 mm after switchover point (of starting cam).

CHECKING THE PNEUMATIC SHUTOFF BOX
-Control lever up against idle stop.
At n = 290 1/min and pu = 450 mbar
control rod must move briskly to
control-rod travel = 0 mm

Start-of-delivery sensor system: adjustment and blocking with device KDEP 1077 = 19.3°...19.7° (19.2...19.8°) angular displacement of cam following start of delivery of cylinder no. 1. Difference in start of delivery between max. and min. value = max. 1° angular displacement of cam

Adjustment of the control-rod travel sensor

At a speed of 1000 1/min, set fuel delivery at 23.0...24.0 (22.0...25.0) ccm/1000 strokes with control lever. Shift control-rod-travel sensor until U = 1.633...1.639 (1.635...1.637) V is indicated. Tighten fastening screws with 1...2 Nm. Control lever to full-load stop; voltage value of 2.472... 2.532 V must be attained.

Adjustment of the control-rod travel sensor

At a speed of 1000 1/min, set fuel delivery at 22.0...23.0 (21.0...24.0) ccm/1000 strokes with control lever. Shift control-rod-travel sensor until U = 1.633...1.639 (1.635...1.637) V is indicated. Tighten fastening screws with 1...2 Nm. Control lever to full-load stop; voltage value of 2.472... 2.532 V must be attained.

Pin projection = 16.60...16.70 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB

: 08.07.92 Edition Replaces : 17.02.89 : ISO-4113 Test oil

Combination no. : 0 400 076 987

Injection pump

Pump designation : PES6M55C32ORS157 EP type number : 0 410 056 993

Governor

Governor design. : RSF315/2300M64-2 Governer no. : 0 420 021 059

Customer-spec. information Customer : MB-PKW

Engine : 0M603A / ALDA

1st version kW : 110.0

TEST BENCH REQUIREMENTS

Test oil

inlet tamp. *C : 38...42

Overflow valve

: 1 469 990 351

Inlet press., bar: 1.00

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 2.20...2.30 Prestroke mm

: (2.15...2.35)

Rack travel in mm : 20.00...22.00

Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300

Tolerance $+ - \cdot : 0.00 (1.00)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rom: 1000

Rack travel in mm : 13.90...14.00

Del.quantity cm3/: 5.1...5.2

100 s: (5.0...5.3)

Spread cm3 : 0.2

100 s: (0.3)

rpm : 290.0 2nd speed Rack travel in mm: 5.3...5.5

Del.quantity cm3/: 0.5...0.6

100 s: (0.5...0.9)

cm3 : 0.1Spread

100 s: (0.15)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000 Aneroid pressure h: 1850 Anerona p. Del.quantity 1000

: 51.0...52.0

: (50.0...53.0)

Spread cm3 : 2.50

1000 : (3.00)

RATED SPEED

1st version

Control Lever

position degrees: 50...0 3rd rack travel in: 8.1...8.5

rpm : 2500 Speed 4th rack travel in: 2950

: 0.00...1.00 Speed rpm

SET IDLE CONTROL LEVER

POSITION

rpm : 1000 Speed

Rack travel in mm: 1.7...1.8

LOW IDLE 1 Control lever

position degrees: 8...12

Setting point w/out bumper spring

L17

COM Spread! cm3 : 2.50Rack travel in mm: 5.4 1000 s: (3.00) Aneroid pressure h: 1050 rpm : 1000 Testing: Speed Del.quantity cm3/: 33.0...34.0 1000 s: (32.0...35.0) Speed COM : 200 Minimum rack trave: 7.00 : 250 Speed cm3 : 2.50rpin Spread Rack travel in mm : 5.30...5.50 1000 s: (3.00) Rack travel in mm: 2.50 Speed : 510...610 rom : 1000 Speed STARTING FUEL DELIVERY nom Maximum rack trave: 1.80 SET IDLE AUXILIARY SPRING Speed rpm : 100 Del.quantity cm3/ : 52.0...0.0 rpm : 360 Speed 1000 s: (52.0...0.0) Rack travel in mm : 4.20...4.40 : (4.10...4.50) Rack travel in mm : 20.10...0.00 TORQUE CONTROL HIGH IDLE Torque control curve - 1st version rpm : 1000 1st speed 1st version Rack travel in m: 13.90...14.00 Aneroid pressure h: 1850 2nd speed non : 1600 Speed rpm : 2500 Rack travel in mm : 8.10...8.50 Del.quantity cm3/: 29.0...33.0 1000 s: (28.0...34.0) Rack travel in m: 13.20...13.40 3rd speed rpm : 2200 Rack travel in m: 12.30...12.50 Spread cm3 : 2.50Aneroid/Altitude 1000 s: (3.00) Compensator Test LOW IDLE 1st version rpm : 290 Speed Rack travel in mm: 5.30...5.50 Del.quantity cm3/: 5.5...6.5 1000 s: (5.0...9.5) Settina Speed : 1000 L CW Pressure hPa : 1600 : 0.50...0.90 Rack travel mm cm3 : 1.00 Spread 1000 s: (1.50) Measurement 1/min: 1000 Speed SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR) 1st pressure hPa : 1050 Rack travel in m: 3.90...4.10 2nd pressure hPa : 750 Control lever at idle stop rpm : 315 Rack travel in m: 5.80...6.20 Speed Rack travel in mm : (12.8...14.2) FUEL DELIVERY CHARACTERISTICS Del.quantity cm3/: -1000 s: (42.0...49.0) : 1.8 Current A 1st version Aneroid pressure h: 1850 Control lever at full-load stop Speed : 1600 rpm : 2950 nom Speed Del.quantity cm3/: 50.0...51.5 1000 s: (49.0...52.5) Rack travel in mm: 0.0...1.0 Current cm3 : 2.50short-duration A: 3,0 Spread 1000 s: (3.00) Starting test Aneroid pressure h: 1850 Speed rpm : 100 Del.quantity cm3/: -min. 1000 s: 52.0 rpm : 2200 Speed Del.quantity cm3/: 48.5...50.5 1000 s: (47.5...51.5)

Remarks:

Pin projection = 16.60...16.70 mm

Sliding sleeve pre-travel = 6.5 mm

CHECKING THE IDLE—SPEED AUXILIARY SPRING CUTOFF
—Control—lever position 49°, max.

U.2 mm control—rod travel deduction allowable after switchover point (of starting cam) up to 1000 1/min.

Control—lever position 46.5°, control—rod travel deduction must be greater than 0.2 mm after switchover point (of starting cam).

CHECKING THE PNEUMATIC SHUTOFF BOX
-Control lever up against idle stop.
At n = 290 1/min and pu = 450 mbar
control rod must move briskly to
control-rod travel = 0 mm

Start-of-delivery sensor system: adjustment and blocking with device KDEP 1077 = 19.3°...19.7° (19.2...19.8°) angular displacement of cam following start of delivery of cylinder no. 1. Difference in start of delivery between max. and min. value = max. 1° angular displacement of cam

Testing and adjusting the control-rodtravel sensor with evaluation circuit KDEP-P400

Receiving inspection
Shift control lever to full-load stop.
Set 13.5 V at stabilizer. Apply
1850 hPa to ALDA. Run up to speed of
1000 1/min; a voltage of 2.472...2.532
(2.442...2.562) V must be displayed
on the digital voltmeter.

Adjustment of the control-rod travel sensor

At a speed of 1000 1/min, set fuel delivery at 23.0...24.0 (22.0...25.0) ccm/1000 strokes with control lever. Shift control-rod-travel sensor until U = 1.633...1.639 (1.635...1.637) V is indicated. Tighten fastening screws with 1...2 Nm. Control lever to full-load stop; voltage value of 2.472... 2.532 V must be attained.

COSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet

: MB

Edition Replaces : 08.07.92 : 17.02.89

Test oil

: ISO-4113

Combination no.

: 0 400 076 992

Injection pump

EP type number

Pump designation : PES6M55C32ORS157 : 0 410 056 993

Governor

Governor design. : RSF315/2300M64

Governer no.

: 0 420 021 044

Customer-spec. information Customer

: MB-PKW

Engine

: OM603A / ALDA

1st version kW

: 110.0

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 469 990 351

Inlet press., bar: 1.00

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test lines

: 1 680 750 014

Outside diameter x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 2.20...2.30

: (2.15...2.35)

Rack travel in mm : 20.00...22.00

Firing order

: 1-5-3-6-2-4

Phasina : 0-60-120-180-240-300

Tolerance + - *

: 0.00 (1.00)

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm: 1000

Rack travel in mm : 13.90...14.00

Del.quantity cm3/: 5.1...5.2

100 s: (5.0...5.3)

Spread

cm3 : 0.2

100 s: (0.3)

2nd speed rpm : 290.0 Rack travel in mm : 5.3...5.5

Del.quantity cm3/: 0.5...0.6 100 s: (0.5...0.9)

cm3 : 0.1

100 s: (0.15)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Spread

rpm : 1000

Aneroid pressure h: 1850

: 51.0...52.0

Del.quantity

1000 : (50.0...53.0)

Spread

cm3 : 2.50 1900 : (3.00)

RATED SPEED

1st version

Control lever

position degrees: 50...0

3rd rack travel in: 8.1...8.5

rpm : 2500 Speed

4th rack travel in: 2950

: 0.00...1.00 Speed rpm

SET IDLE CONTROL LEVER POSTTION

Speed

rpm : 1000

Rack travel in mm: 1.7...1.8

LOW IDLE 1

Control lever

position degrees: 8...12 Setting point w/out bumper spring

L20

Speed Spread cm3 : 2.50rom Rack travel in mm: 5.4 1000 s: (3.00) Aneroid pressure h: 1050 rpm : 1000 Testing: Speed Speed : 200 Del.quantity cm3/: 33.0...34.0 rpm Minimum rack trave: 7.00 1000 s: (32.0...35.0) : 290 Speed cm3 : 2.50 mon . Spread Rack travel in mm : 5.30...5.50 1000 s: (3.00) Rack travel in mm: 2.50 : 510...610 Speed FOR Speed : 1000 STARTING FUEL DELIVERY ron Maximum rack trave: 1.80 Speed rpm : 100 Del.quantity cm3/ : 52.0...0.0 SET IDLE AUXILIARY SPRING Speed rpm : 360 1000 s: (52.0...0.0) Rack travel in mm : 4.20...4.40 Rack travel in mm : 20.10...0.00 : (4.10...4.50) TORQUE CONTROL HIGH IDLE Torque control curve - 1st version 1st speed rpm : 1000 1st version Rack travel in m: 13.90...14.00 Aneroid pressure h: 1850 2rd speed rom : 1600 Speed mon : 2500 Rack travel in m: 13.20...13.40 3rd speed rpm : 2200 Rack travel in mm : 8.10...8.50 Del.quantity cm3/: 29.0...33.0 Rack travel in m: 12.30...12.50 1000 s: (28.0...34.0) cm3 : 2.50Spread Aneroid/Altitude 1000 s: (3.00) Compensator Test LOW IDLE rpm : 290 1st version Speed Rack travel in mm : 5.30...5.50 Settina Del.quantity cm3/ : 5.5...6.5 1000 s: (5.0...9.5) Speed : 1000 rom Pressure hPa : 1600 : 0.50...0.90 cm3 : 1.00 Rack travel mm Spread 1000 s: (1.50) Measurement 1/min: 1000 Speed SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR) 1st pressure hPa : 1050 Rack travel in m: 3.90...4.10 2nd pressure hPa : 750 Control lever at idle stop : 315 Rack travel in m: 5.80...6.20 rpm Rack travel in mm : (12.8...14.2) FUEL DELIVERY CHARACTERISTICS Del.quantity cm3/:-1000 s: (42.0...49.0) : 1.8 Current A 1st version Aneroid pressure h: 1850 Control lever at full-load stop : 1600 rpm : 2950 Speed rpm Speed Del.quantity cm3/: 50.0...51.5 Rack travel in mm: 0.0...1.0 1000 s: (49.0...52.5) Current : 2.50 Spread cm3 short-duration A: 3,0 1000 s: (3.00) Starting test Aneroid pressure h: 1850 rpm : 100 Speed : 2200 Del.quantity cm3/:-Speed rpm Del.quantity cm3/: 48.5...50.5 1000 s: 52.0 min. 1000 s: (47.5...51.5) Remarks:

Pin projection = 16.60...16.70 mm

Sliding sleeve pre-travel = 6.5 mm

CHECKING THE IDLE—SPEED AUXILIARY SPRING CUTOFF
—Control—lever position 49°, max.
0.2 mm control—rod travel deduction allowable after switchover point (of starting cam) up to 1000 1/min.
Control—lever position 46.5°, control—rod travel deduction must be greater than 9.2 mm after switchover point (of starting cam).

CHECKING THE PNEUMATIC SHUTOFF BOX
-Control lever up against idle stop.
At n = 290 1/min and pu = 450 mbar
control rod must move briskly to
control-rod travel = 0 mm

Start-of-delivery sensor system: adjustment and blocking with device KDEP 1077 = 19.3°...19.7° (19.2...19.8°) angular displacement of cam following start of delivery of cylinder no. 1. Difference in start of delivery between max. and min. value = max. 1° angular displacement of cam

Testing and adjusting the control-rodtravel sensor with evaluation circuit KDEP-P400

Receiving inspection
Shift control lever to full-load stop.
Set 13.5 V at stabilizer. Apply
1850 hPa to ALDA. Run up to speed of
1000 1/min; a voltage of 2.472...2.532
(2.442...2.562) V must be displayed
on the digital voltmeter.

Adjustment of the control-rod travel sensor

At a speed of 1000 1/min, set fuel delivery at 23.0...24.0 (22.0...25.0) ccm/1000 strokes with control lever. Shift control-rod-travel sensor until U = 1.633...1.639 (1.635...1.637) V is indicated. Tighten fastening screws with 1...2 Nm. Control lever to full-load stop; voltage value of 2.472... 2.532 V must be attained.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB Edition : 08.07.92 Replaces : 14.11.89 Test oil : ISO-4113 Combination no. : 0 400 076 996 Injection pump Pump designation : PES6M55C32ORS155 EP type number : 0 410 056 997 Governor Governor design. : RSF315/2300M62 Governer no. : 0 420 021 035 Customer-spec. information Customer : MB-PKW Engine : 0M603 1st version kW : 80.0 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42

Overflow valve	: 1 469 990 351
Inlet press., bar	: 1.00
Test nozzle holder assembly	: 0 681 343 009
Opening pressure, bar	: 172175
Test lines	: 1 680 750 014
Outside diameter x Wall thickness x Length mm	: 6.00x2.00x600
(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values	
BEGINNING OF DELIVERY Test pressure, bar: 3032	
Prestroke mm	: 2.002.10 : (1.952.15)
Rack travel in mm Firing order	: 20.0022.00 : 1-5- 3- 6-
L23	

2- 4

```
Phasing
                 : 0-60-120-180-240-300
Tolerance + - ^{\circ} : 0.00 (1.00)
Time to cyl. no. : 1
BASIC SETTING
1st speed
             ram : 1000
Rack travel in mm : 11.30...11.40
Del.quantity cm3/: 3.1...3.2
             100 s: (3.0...3.3)
Spread
            cm3 : 0.2
             100 s: (0.3)
2nd speed
            rpm : 290.0
Rack travel in mm : 5.4...5.6
Del.quantity cm3/: 0.5...0.6
             100 s: (0.5...0.9)
Spread
             cm3 : 0.1
             100 s: (0.15)
FULL LOAD DELIV. AT FULL LOAD STOP
1st version
            rpm : 1000
Speed
                : 31.5...32.5
Del.quantity
            1000 : (30.5...33.5)
            cm3
                : 2.50
Spread
            1000 : (3.00)
RATED SPEED
1st version
Control lever
position degrees: 50...0
3rd rack travel in: 7.8...8.2
           rpm : 2500
 Speed
4th rack travel in: 2950
 Speed
           rpm : 0.00...1.00
SET IDLE CONTROL LEVER
POSITION
                : 1000
Speed
           rpm
Rack travel in mm: 0.9...1.0
LOW IDLE 1
Control lever
position degrees: 13...17
Setting point w/out bumper spring
Speed
          rpm : 290
```

Rack travel in mm: 5.5 Testing: Speed : 220 rpm Minimum rack trave: 7.00 Speed rpm : 290 Rack travel in mm : 5.40...5.60 Rack travel in mm: 1.50 Speed : 620...720 rom Speed : 1000 rpm Maximum rack trave: 1.00 SET IDLE AUXILIARY SPRING rpm : 360 Speed Rack travel in mm : 4.20...4.40 : (4.10...4.50) TORQUE CONTROL Torque control curve – 1st version rpm : 1000 1st speed Rack travel in m: 11.30...11.40 rpm : 1800 2nd speed Rack travel in m: 10.90...11.10 3rd speed rpm : 2200 Rack travel in m: 10.60...10.80 FUEL DELIVERY CHARACTERISTICS 1st version Speed : 1800 rpm Del.quantity cm3/: 34.0...35.5 1000 s: (33.0...36.5) cm3 : 2.50 1000 s: (3.00) Spread : 2200 Speed rpm -Del.guantity cm3/: 33.5...35.5 1000 s: (32.5...36.5) cm3 : 2.50Spread 1000 s: (3.00) STARTING FUEL DELIVERY Speed rpm : 100
Del.quantity cm3/ : 55.0...0.0
1000 s: (55.0...0.0)
Rack travel in mm : 20.10...0.00 HIGH IDLE 1st version : 2500 Speed rpm Rack travel in mm : 7.80...8.20 Del.quantity cm3/ : 22.0...26.0

1000 s: (21.0...27.0)

cm3 : 2.501000 s: (3.00) LOW IDLE rpm : 290 Speed Rack travel in mm : 5.40...5.60 Del.quantity cm3/ : 5.5...6.5 1000 s: (5.0...9.5) cm3 : 1.00 Spread 1000 s: (1.50) SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR) Control lever at idle stop Speed rpm : 315
Rack travel in mm : (12.6...14.0) Del.quantity cm3/: -1000 s: (32.0...40.0) Current A : 1.8 Control lever at full-load stop : 2950 Speed rpm Rack travel in mm : 0.0. .i.0 Current short-duration A: 3,0 Starting test Speed rpm : 100 Del.quantity cm3/: -min. 1000 s: 55.0 / 1.8A Remarks: Sliding sleeve pre-travel = 6.5 mm CHECKING THE IDLE-SPEED AUXILIARY SPRING CUTOFF -Control-lever position 49°, max. 0.2 mm control-rod travel deduction allowable after switchover point (of starting cam) up to 1000 1/min. Control-lever position 46.5°, control-rod travel deduction must be greater than 0.2 mm after switchover point (of starting cam). SPRING CUTOFF

CHECKING THE IDLE-SPEED AUXILIARY -Control-lever position 35,5°, max. 0.2 mm control-rod travel deduction allowable after switchover point (of starting cam) up to 1000 1/min. -Control-lever position 33.0°, control-rod travel deduction must be greater than 0.2 mm after switchover point (of starting cam).

Start-of-delivery sensor system: adjustment and blocking with device

Spread

KDEP 1077 = 19.3°...19.7° (19.2...19.8°) angular displacement of cam following start of delivery of cylinder no. 1.
Difference in start of delivery between max. and min. value = max. 1° angular displacement of cam

Testing and adjusting the control-rodtravel sensor with evaluation circuit KDEP-P400 Receiving inspection

Receiving inspection
Shift control lever to full-load stop.
Set 13.5 V at stabilizer. Apply
1850 hPa to ALDA. Run up to speed of
1000 1/min; a voltage of 2,043...2,103
(2,013...2,132) V must be displayed
on the digital voltmeter.

Adjustment of the control-rod travel sensor

At a speed of 1000 1/min, set fuel delivery at 18,0...19,0 (17,0...20,0) ccm/1000 strokes with control lever. Shift control-rod-travel sensor until U = 1.633...1.639 (1.635...1.637) V is indicated. Tighten fastening screws with 1...2 Nm. Control lever to full-load stop; voltage value of 2.487... 2.547 V must be attained.

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 4.00...4.10 : (3.95...4.15) Rack travel in mm : 9.00...12.00 Firing order : 8-7-2-6-3-5-Note remarks Firing order : MB 14,7 c 6 : 10.07.92 Test sheet Edition Replaces : 26.02.88 Test oil : ISO-4113 Phasing : 0-45-90-135-180-225-Combination no. : 0 401 848 796 270-315 Tolerance + - ° : 0.50 (0.75) Injection pump Pump designation : PE8P110A320LS3842-1 Time to cyl. no. : 8 : 0 411 818 716 EP type number Governor BASIC SETTING Governor design. : RQ300/1050PA187-18 Governer no. : 0 421 801 430 1st speed rpm: 750 Rack travel in mm : 12.70...12.80 Customer-spec. information Customer : DAIMLER-BENZ Del.quantity cm3/: 12.6...12.8 Engine : 0M442 100 s: (12.3...13.0) 1st version kW : 213.0 Rated speed : 2100 Spread cm3 : 0.4TEST BENCH REQUIREMENTS 100 s: (0.7) rpm : 300.0 Test oil 2nd speed inlet temp. °C : 38...42 Rack travel in mm: 8.4...8.8 Del.quantity cm3/ : 1.5...2.1 100 s: (1.2...2.3) Overflow valve : 1 417 413 025 cm3 : 0.4Spread 100 s: (0.7) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Overflow Control-lever position quantity min. 1/h: 100...120 Degree: -1 rpm : 650 Speed Test nozzle holder Rack travel in mm : 13.60...14.40 assembly : 0 481 343 009 FULL LOAD DELIV. AT FULL LOAD STOP Opening pressure, bar : 172...175 1st version Speed rpm : 750 Del.quantity : 126.0...128.0 1000 : (123.5...130.5) Test lines : 1 680 750 015 : 4.00 Spread cm3 1000 : (7.50) Outside diameter x Wall thickness x Length mm : 6.00x1.50x600 RATED SPEED (A) Injection pump setting values 1st version Insp. values in parentheses Set equal delivery quant. Setting point: per values Speed : 650 l'iom Rack travel in mm: 14.0 BEGINNING OF DELIVERY Test pressure, bar: 25...27 Testina:

1st rack travel in: 11.70

rpm : 1095...1110 Speed

2nd rack travel in: 4.00

rpm : 1150...1180 Speed

4th rack travel in: 1350

rpm : 0.00...2.00Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300 Speed Rack travel in mm: 6.9

Testing:

Speed rpm : 200 Minimum rack trave: 9.00 : 300 Speed rpm

Rack travel in mm : 6.80...7.00

Rack travel in mm: 2.00 rpm : 400...440 Speed

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 1050 Speed

Del.quantity cm3/: 136.0...140.0

1000 s: (133.0...143.0)

cm3 : 7.00Spread 1000 s: (10.0)

RACK STOP ADJUSTMENT

Speed rpm : 600

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.70

rpm : 1095...1110 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0)

Remarks:

L27

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,7 a16
Edition : 22.05.92
Replaces : 02.91
Test oil : ISO-4113

Combination no. : 0 402 036 745

Injection pump

Pump designation : PES6P110A720/3LS3131

EP type number : 0 412 016 734

Governor

Governor design. : RQ300/1100PA722-1

Governer no. : 0 421 801 461

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M447

1st version kW : 168.0 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40

: (4.25...4.45)

Rack travel in mm : 9.00...12.00

Firing order : 6-2-4-1-5-3

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 10.90...11.00

Del.quantity cm3/: 13.7...13.9

100 s: (13.4...14.1)

Spread cm3 : 0.4

100 s: (0.8)

2nd speed rpm : 300.0 Rack travel in mm : 7.2...7.4

Del.quantity cm3/: 1.4...2.0

190 s: (1.1...2.3)

Spread cm3 : 0.4

100 s: (0.8)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

peed from: 600

Rack travel in mm : 12.50...13.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rom: 1100

Del.quantity : 137.0...139.0

1000 : (134.5...141.5)

Spread cm3 : 4.00

1000 : (8.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600 Rack travel in mm : 13.0

.

Testing:

1st rack travel in: 9.90

rpm : 1140...1155 Speed

2nd rack travel in: 4.00

rpm : 1185...1215 Speed

4th rack travel in: 1300

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm : 7.3

Testing:

rpm : 100 Speed Minimum rack trave: 8.80

Speed rpm : 300 Rack travel in mm : 7.20...7.40

Rack travel in mm: 2.00 Speed ricm : 370...410

FUEL DELIVERY CHARACTERISTICS

ist version

Speed rpm : 600 Del.quantity cm3/ : 113.0...117.0

1000 s: (110.0...120.0)

Spread cm3 : 6.00

1000 s: (9.00)

BREAKAWAY

1st version imm rack travel less than

full load rack tr: 9.90

rpm : 1140...1155 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 130.0...150.0 1000 s: (126.0...154.0)

Remarks:

MO1

BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 30...32 Note remarks Prestroke mm : 3.70...3.80 : (3.65...3.85) Test sheet Rack travel in mm : 14.50...15.50 : MAN : 6-2-4-1-5-3 Edition : 03.07.92 Firing order Replaces Test oil : ISO-4113 Combination no. : 0 402 223 752 : 0-60-120-180-240-300 Phasing Phasing Injection pump Tolerance + - * : 0.50 (0.75) Pump designation : PES6P120A720/3LS3255 Time to cyl. no. : 6 EP type number : 0 412 026 756 Governor BASIC SETTING Governor design. : RQV300...1000PA876 -13 1st speed rpm: 700 Governer no. : 0 421 814 010 Rack travel in mm : 14.70...14.80 Customer-spec. information Customer : MAN Del.quantity cm3/: 23.3...23.5 : D2866LE102 100 s: (23.0...23.8) Engine 1st version kW : 260.0 cm3 : 0.5Spread : 2000 Rated speed 100 s: (0.9) TEST BENCH REQUIREMENTS 2nd speed rpm : 300.0Test oil Rack travel in mm: 4.8...5.2 Del.quantity cm3/: 1.7...2.3 inlet temp. °C : 38...42 100 s: (1.4...2.6) Overflow valve cm3 : 0.8 Spiread : 1 417 413 025 100 s: (1.2) (B) Setting of injection pump Inlet press., bar: 1.50 with governor Test nozzle holder assembly : 1 688 901 019 GUIDE SLEEVE TRAVEL rpm : 1045 1st speed Opening travel mm 9.90...10.10 pressure, bar : 207...210 2nd speed 300 rpm : : 1.50...1.70 travel mm Orifice plate : 500 3rd speed man diameter mm : 0,8 : 3.30...3.90 travel mm 4th speed : 800 rpm : 6.80...7.20 travel mm Test lines : 1 680 750 075 5th speed : 1300 rpm : 13.00...14.00 travel mm Outside diameter x Wall thickness GUIDE SLEEVE POSITION : 8.00X2.50X1000 x Length mm Control-lever position Degree: -1 rpm : 1110 (A) Injection pump setting values Speed Insp. values in parentheses Set equal delivery quant. Rack travel in mm : 12.40...15.00 per values __ FULL LOAD DELIV. AT FULL LOAD STOP

1st version

BEGINNING OF DELIVERY

Speed rpm : 700 Aneroid pressure h: 1200 : 233.0...235.0 Del.quantity 1000 : (230.0...238.0) cm3 : 5.00 Spread 1000 : (9.00) RATED SPEED

1st version Control lever

position degrees: 298...306

Testina:

1st rack travel in: 13.70 Speed rpm : 1040...1050

2nd rack travel in: 4.00 rpm : 1135...1165 Speed

4th rack travel in: 1300

Speed rom : 0.00...1.00

LOW IDLE 1 Control Lever

position degrees: 254...262

Testing:

: 200 Speed COM Minimum rack trave: 6.50 Speed man : 300

Rack travel in mm : 4.90...5.10

CONSTANT REGULATION

rpm : 290...400 Speed

TORQUE CONTROL

Dimension a mm : 0.20

Torque control curve - 1st version

1st speed rpm : 700

Rack travel in m: 14.70...14.80

2nd speed rpm : 1000

Rack travel in m: 14.50...14.70

Aneroid/Altitude Compensator Test

1st version Settina

Speed : 500 mon. Pressure hPa : 1200

Rack travel mm : 14.70...14.80

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 11.40...11.60

2nd pressure hPa : 210

Rack travel in m: 11.80...11.90 3rd pressure hPa : 570

Rack travel in m: 13.80...14.20

START CUT-OUT

1/min : 240 (260) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm : 1000 Del.quantity cm3/: 230.0...236.0 1000 s: (227.0...239.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 130.0...132.0

1000 s: (127.0...135.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.70

Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 190.0...210.0

1000 s: (186.0...214.0)

LOW IDLE

Speed rpm : 300

Rack travel in mm : 4.80...5.20 Del.quantity cm3/: 17.0...23.0 1000 s: (14.0...26.0)

Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

: MAN-NR. 3-7191

Setting and blocking of pointer of start-of-delivery sensor on cyl. 6

start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 4.30...4.40 : (4.25...4.45)

Rack travel in mm : 9.00...12.00

Firing order : 6-2-4-1-5-3 Note remarks Test sheet Edition : 26,06,92 Replaces Test oil : ISO-4113 : 0-60-120-180-240-300 Phasina Combination no. : 0 402 036 753 Tolerance + - ° : 0.50 (0.75) Injection pump Pump designation : PES6P110A720/3LS3131 Time to cyl. no. : 6 EP type number : 0 412 016 734 BASIC SETTING Governor Governor design. : RQV300...1100PA916 1st speed rpm : 1100Governer no. : 0 421 813 748 Rack travel in mm : 11.40...11.50 Customer-spec. information Customer : MERCEDES-BENZ Del.quantity cm3/: 13.7...13.9 100 s: (13.4...14.1) Engine : 0M447 1st version kW : 168.0 Spread cm3 : 0.4Rated speed : 2200 100 s: (0.8) TEST BENCH REQUIREMENTS rpm : 300.0 2nd speed Test oil Rack travel in mm: 7.6...7.8 inlet temp. °C : 38...42 Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3) Overflow valve Spread cm3 : 0.4: 1 417 413 025 100 s: (0.8) Inlet press., bar: 1.50 (B) Setting of injection pump with governor Overflow quantity min. 1/h: 100...120 GUIDE SLEEVE TRAVEL rpm : 300 1st speed Test nozzle holder : 1.60...1.90 travel mm : 0 681 343 009 assembly 2nd speed rpm : 425 : 3.30...3.70 travel mm Opening | 3rd speed rpm : 920 : 172...175 pressure, bar travel mm : 5.70...6.10 4th speed 1155 rpm : 7.90...8.40 travel mm Test lines : 1 680 750 015 rpm : 1255 5th speed : 9.70...10.20 travel mm Outside diameter x Wall thickness GUIDE SLEEVE POSITION : 6.00x1.50x600 x Length mm Control-lever position Degree: -1 rpm : 1220 (A) Injection pump setting values Insp. values in parentheses Rack travel in mm : 9.10...11.70 Set equal delivery quant. FULL LOAD DELIV. AT FULL LOAD STOP per values

1st version

rpm : 1100

Speed

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Del.quantity : 13(.0...131.5)

: 4.00 cm3 Spread 1000 : (8.00)

RATED SPEED

1st version Control lever

position degrees: 114...122

Testing:

1st rack travel in: 10.40

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

rpm : 1195...1225 Speed

4th rack travel in: 1300

rpm : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 85...93

Testing:

Speed rpm : 200 Minimum rack trave: 9.20 rpm : 300 Speed

Rack travel in mm : 7.60...7.80

CONSTANT REGULATION

Speed rpm : 300...500

START CUT-OUT

Speed 1/min: 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600

Del.quantity cm3/: 113.0...116.0 1000 s: (110.0...119.0) Spread cm3 : 5.00 1000 s: (9.00)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.40

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 130.0...150.0

1000 s: (126.0...154.0)

Remarks:

MO5

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 2.80...2.90 : (2.75...2.95) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Note remarks Test sheet : RVI 8,8 d 5 Edition : 22.05.92 Replaces : 02.92 Test oil : ISO-4113 Phasing : 0-60-120-180-240-300 Combination no. : 0 402 046 328 Tolerance + - ° : 0.50 (0.75) Injection pump BASIC SETTING Pump designation : PES6P120A32ORS419-2 EP type number : 0 412 026 048 1st speed rpm : 500 Governor Governor design. : RQ275/950PA753-1 Rack travel in mm : 8.70...8.80 : 0 421 801 377 Governer no. Del.quantity cm3/: 12.0...12.2 Customer-spec. information Customer : RVI 100 s: (11.7...12.5) : MIDS/PS062045 FC cm3 : 0.5Engine Spread 1st version kW : 144.0 100 s: (0.9) Rated speed : 1900 rpm : 250.02nd speed Rack travel in mm: 4.8...5.2 TEST BENCH REQUIREMENTS Del.quantity cm3/: 1.7...2.3 Test oil 100 s: (1.4...2.6) inlet temp. °C : 38...42 cm3 : 0.8Spread 100 s: (1.2) Overflow valve : 1 419 992 198 GUIDE SLEEVE POSITION Control-lever position Inlet press., bar: 1.50 Degree: -2 Speed rpm: 525 Rack travel in mm: 19.20...20.80 Test nozzle holder assembly : 1 688 901 019 FULL LOAD DELIV. AT FULL LOAD STOP Openina pressure, bar : 207...210 1st version Speed rpm : 500 Orifice plate Aneroid pressure h: 700 Del.quantity diameter mm : 120.0...122.0 : 0,8 1000 : (117.0...125.0) : 5.00 Spread cm3 Test lines : 1 680 750 075 1000 : (9.00) Outside diameter RATED SPEED x Wall thickness : 8.00x2.50x1000 x Length mm 1st version (A) Injection pump setting values Setting point: Insp. values in parentheses Speed rpm : 525 Set equal delivery quant. Rack travel in mm: 20.0 per values Testing: BEGINNING OF DELIVERY 1st rack travel in: 7.20 Test pressure, bar: 25...27 Speed rpm : 1015...1030 2nd rack travel in: 4.00

rpm : 1050...1080 Speed

4th rack travel in: 1300

rom : 0.00...1.00Speed

LOW IDLE 1

Setting point w/out bumper spring

rpa : 250 Speed Rack travel in mm: 4.30

Testing:

rpm Speed : 200 Minimum rack trave: 6.00 Speed rpm : 250

Rack travel in mm : 4.20...4.40

Rack travel in mm: 2.00 Speed : 330...370 rom

TORQUE CONTROL

Dimension a mm :?

Torque control curve - 1st version

1st speed rpm : 500

Rack travel in m: 8.70...8.80

nom : 950 2nd speed

Rack travel in m: 8.00...8.20

3rd speed rpm : 750

Rack travel in m: 8.30...8.50

Aneroid/Altitude Compensator Test

1st version

Setting Speed

: 500 rpn hPa : 700

Pressure Rack travel mm : 8.70...8.80

Measurement

 $1/\min : 500$ Speed

1st pressure hPa : -

Rack travel in m: 8.00...8.20

2nd pressure hPa : 240

Rack travel in m: 8.45...8.55

START CUT-OUT

1/min: 195 (215) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700 rpm : 950

Del.quantity cm3/: 140.0...144.0 1000 s: (137.0...147.0)

Aneroid pressure h: -

Speed : 500 man

Del.quantity cm3/: 107.0...109.0

1000 s: (104.0...112.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 7.20

Speed rpm : 1015...1030

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0)

LOW IDLE

Speed rpm : 250

Rack travel in mm : 4.80...5.20

Del.quantity cm3/: 17.0...23.0 1000 s: (14.0...26.0)

Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

Start-of-delivery mark 9.5° cam angle

after start of delivery cyl. 1

APPLICATION

Omnibus

J

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : RVI 9,8 k : 22.05.92 Edition : 11.90 Replaces Test oil : ISO-4113 Combination no. : 0 402 046 340 Injection pump Pump designation : PES6P120A320RS525 EP type number : 0 412 026 058 Governor Governor design. : RQV300...1050PA955 : 0 421 813 856 Governer no. Customer-spec. information Customer : RVI Engine : MIDSO62045J 1st version kW : 160.0 Rated speed : 2100 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 019 Opening . pressure, bar : 207...210 Orifice plate diameter mm : 0,8 Test lines : 1 680 750 075 Outside diameter x Wall thickness x Length mm : 8.00x2.50x1000 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

Prestroke mm : 2.80...2.90 : (2.75...2.95) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Phasina : 0-60-120-180-240-300 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 1050Rack travel in mm : 9.40...9.50 Del.quantity cm3/: 13.8...14.0 100 s: (13.5...14.3) Spread cm3 : 0.5100 s: (0.9) rpm : 275.0 2nd speed Rack travel in mm: 5.0...5.4 Del.quantity cm3/: 1.7...2.3 100 s: (1.4...2.6) cm3 : 0.8 Spread 100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1050 1st speed travel mm : 8.00...8.20 2nd speed rpm : 275 : 0.80...1.20 travel mm 3rd speed rpm : 430 : 3.40...4.00 travel mm 4th speed rpm : 1400 : 11.00...12.00 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1240 Speed Rack travel in mm : 8.10...10.70 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1050 Speed

: 138.0...140.0

1000 : (135.0...143.0)

Del.quantity

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Spread

cm3: 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 298...306

Testing:

1st rack travel in: 8.40

rpm : 1115...1125 Speed

2nd rack travel in: 4.00

rpm : 1175...1205 Speed

4th rack travel in: 1350

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control Lever

position degrees: 244...252

Testing:

Speed : 175 ron

Minimum rack trave: 6.70

rpm : 275

Rack travel in mm : 5.10...5.30

CONSTANT REGULATION

Speed rpm : 310...430

START CUT-OUT

1/min: 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

: 700 Speed rom

Del.quantity cm3/: 126.0...134.0

1000 s: (123.0...137.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.40

Speed rpm : 1115...1125

STARTING FUEL DELIVERY

: 100 Speed **LDW**

Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0)

LOW IDLE

Speed rpm : 275

Rack travel in mm : 5.00...5.40

Del.quantity cm3/ : 17.0...23.0

1000 s: (14.0...26.0)

Spread cm3 : 8.00 1000 s: (12.00)

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

MD9

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet

: RVI

Edition

: 22.05.92

Replaces

Test oil

: ISO-4113

Combination no.

: 0 402 046 836

Injection pump

Pump designation : PES6P120A320RS3303

EP type number

: 0 412 026 755

Governor

Governor design. : RQV275...1050PA1038K

Governer no.

: 0 421 815 313

Customer-spec. information Customer

: RVI

Engine

: MIDR 062045 J/3

1st version kW

: 169.0

Rated speed

: 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 1 688 901 105

Opening

pressure, bar

: 207...210

Orifice plate

diameter mm

: 0,8

Test lines

: 1 680 750 089

Outside diameter

x Wall thickness

x Length mm

: 8.00x2.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 3.50...3.60 : (3.45...3.65)

Rack travel in mm : 9.00...12.00 Firing order

: 1-5- 3- 6- 2- 4

Phasina

: 0-60-120-180-240-300

Slerance + - .

: 0.50 (0.75)

BASIC SETTING

1st speed

rpm : 1050

Rack travel in mm : 10.90...11.00

Del.quantity cm3/: 15.3...15.5

100 s: (15.0...15.8)

Spread

cm3 : 0.5

100 s: (0.9)

rpm : 275.0 2nd speed Rack travel in mm: 5.0...5.4

Del.quantity cm3/: 1.9...2.3

100 s: (1.6...2.6)

Spread

cm3 : 0.8100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed

rpm : 1140

: 9.50...9.70 travel mm

2nd speed

rpm : 275

travel mm

: 1.80...2.00

3rd speed

rpm : 380

travel mm

: 3.40...4.00

4th speed

: 740 rpm

travel mm

: 6.40...6.80

5th speed

1480 rpm

travel mm

: 13.00...14.00

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1270

Rack travel in mm : 8.60...11.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Speed

rpm : 1050

Del quantity

: 153.0...155.0

1000 : (150.0...158.0)

M10

cm3 : 5.00 Spread

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 268...276

Testing:

1st rack travel in: 9.90

rpm : 1215...1225 Speed

2nd rack travel in: 6.00

Speed rpm: 1235...1265 4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 221...229

Testing:

Speed rpm : 175 Minimum rack trave: 6.70

Speed rpm : 275 Rack travel in mm : 5.10...5.30

CONSTANT REGULATION

rpm : 280...380 Speed

START CUT-OUT

1/min: 210 (230) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

rom : 700 Speed

Del.quantity cm3/: 131.0...137.0

1000 s: (128.0...140.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.90

rpm : 1215...1225 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 145.0...175.0 1000 s: (141.0...179.0)

LOW IDLE

rpm : 275 Speed

Rack travel in mm : 5.00...5.40 Del.quantity cm3/: 19.0..23.0 1000 s: (16.0..26.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

M11

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : FIN Edition : 26.06.92 Replaces : 03.92 Test oil : ISO-4113 Combination no. : 0 402 048 707 Injection pump Pump designation : PES8P120A320RS3300 EP type number : 0 412 028 707 Governor Governor design. : RQV350...1400PA1028 Governer no. : 0 421 813 987 Customer-spec. information Customer : FINCANTIERT : 1308 V Engine 1st version kW : 500.0 : 2800 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 105 assembly Openina pressure, bar : 207...210 Orifice plate diameter mm : 0,8 Test lines : 1 680 750 089 Outside diameter x Wall thickness

: 8.00x2.50x600

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

: 3.50...3.60 : (3.45...3.65) Rack travel in mm : 9.00...12.00 Firing order : 1-2-7-8-4-5-6-3 Phasina : 0-45-90-135-180-225-270-315 : 0.50 (0.75)Tolerance + - ° BASIC SETTING 1st speed rpm: 750 Rack travel in mm : 15.30...15.40 Del.quantity cm3/: 28.7...28.9 100 s: (28.4...29.2) cm3 : 0.5Spread 100 s: (0.9) rpm : 350.0 2nd speed Rack travel in mm : 7.9...8.3 Del.quantity cm3/: 3.6...4.2 100 s: (3.3...4.5) cm3 : 0.8Spread 100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 1410 : 8.30...8.50 travel mm 2nd speed rpm : 350 travel mm : 1.30...1.70 3rd speed rpm : 520 3.20...3.80 travel mm rpm : 910 4th speed : 5.10...5.50 travel mm rpm : 1750 5th speed : 11.00...12.00 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1490 Rack travel in mm : 13.00...15.60 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 750 Speed Aneroid pressure h: 1000

Prestroke mm

x Length mm

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Del.quantity : 287.0...292.0)

: 5.00 Spread cm3 1000 : (9.00)

RATED SPEED

1st version Control Lever

position degrees: 114...122

Testing:

1st rack travel in: 14.30

rpm : 1390...1400 Speed

2nd rack travel in: 4.00

rpm : 1600...1630 Speed

4th rack travel in: 1750

rpm : 0.30...1.70 Speed

LOW IDLE 1 Control Lever

position degrees: 67...75

Testing:

Speed rpm : 250 Minimum rack trave: 9.60

Speed rpm : 350 Rack travel in mm : 8.00...8.20

CONSTANT REGULATION

Speed rpm : 350...700

Aneroid/Altitude Compensator Test

1st version Setting

rpm : 500 Speed hPa : 1000 Pressure

Rack travel mm : 15.30...15.40

Measurement

1/min : 500Speed

1st pressure hPa : -

Rack travel in m: 10.60...11.00

2nd pressure hPa : 500 Rack travel in m: 13.70...13.80

3rd pressure hPa : 400

Rack travel in m: 11.80...12.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

Speed rpm : 1350
Del.quantity cm3/ : 275.0...281.0
1000 s: (272.0...284.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 138.0...140.0 1000 s: (135.0...143.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 14.30

Speed rpm : 1390...1400

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 405.0...435.0

1000 s: (401.0...439.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 7.90...8.30
Del.quantity cm3/: 36.0...42.0

1000 s: (33.0...45.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

On activation of the starting solenoid, the start position must be reached.

APPLICATION

Ship

M13

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB Edition : 26.06.92 Replaces : ISO-4113 Test oil : 0 402 066 700 Combination no. Injection pump Pump designation : PES6P110A720/3LS3131 EP type number : 0 412 016 734 Governor Governor design. : RSV350...1100P0A487 : 0 421 833 316 Governer no. Customer-spec. information Customer : MERCEDES-BENZ Engine : OM447 : 168.0 1st version kW Rated speed : 2200 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Cverflow quantity min. 1/h: 100...120 Test nozzle holder : 0 681 343 009 assembly Openina | pressure, bar : 172...175 Test lines : 1 680 750 015 Outside diameter x Wall thickness x Length mm : 6.00X1.50X600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

Test pressure, bar: 25...27 : 4.30...4.40 Prestroke mm : (4.25...4.45) Rack travel in mm : 9.00...12.00 Firing order : 6-2-4-1-5-3 Phasina : 0-60-120-180-240-300 Phasing Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 6 BASIC SETTING 1st speed rpm: 1080Rack travel in mm : 11.00...11.10 Del.quantity cm3/: 13.5...13.7 100 s: (13.2...13.9) Spread cm3 : 0.4100 s: (0.8) 2nd speed rpm : 350.0 Rack travel in mm: 6.8...7.0 Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3) cm3 : 0.4Spread 100 s: (0.7)GUIDE SLEEVE POSITION Control-lever position Degree: -3 Speed rpm : 800 Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : ? FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rom : 1080: 135.0...137.0 Del.quantity 1000 : (132.5...139.5) cm3 : 4.00 Spread 1000 : (8.00) RATED SPEED 1st version Control lever

position degrees: 95...103

BEGINNING OF DELIVERY

per values

Testing: 1st rack travel in: 10.00 Speed rpm : 1130...1140 2nd rack travel in: 4.00 rpm : 1190...1220 Speed 4th rack travel in: 1350 rom : 0.30...1.40 Speed LOW IDLE 1 Control Lever position degrees: 69...77 Setting point w/out bumper spring rpm : 350 Speed Rack travel in mm: 6.9 Testing: Speed rpm : 100 Minimum rack trave: 19.50 rpm : 350 Rack travel in mm : 6.80...7.00 Rack travel in mm: 2.00 rpm : 400...440 Speed SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00 FUEL DELIVERY CHARACTERISTICS 1st version rpm : 600 Speed Del.quantity cm3/: 111.0...115.0 1000 s: (108.0...118.0) Spread cm3 : 6.001000 s: (9.00) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.00 rpm : 1130...1140 Speed STARTING FUEL DELIVERY : 100 Speed rom Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0) LOW IDLE rpm : 350 Speed Rack travel in mm : 6.80...7.00 Del.quantity cm3/: 14.0...20.0 1000 s: (11.0...23.0) cm3 : 4.50Spread 1000 s: (7.00)

Remarks:

M15

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB

Edition : 26.06.92

Replaces

Test oil : ISO-4113

Combination no. : 0 402 066 701

Injection pump

Pump designation : PES6P110A720/3LS3131

EP type number : 0 412 016 734

Governor

Governor design. : RSV350...1100P0A487

: 0 421 833 311 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : OM447

1st version kW : 177.0 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40

: (4.25...4.45) Rack travel in mm : 9.00...12.00

Firing order : 6-2-4-1-5-3

: 0-60-120-180-240-300 Phasing

Phasing

Tolerance + - * : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpn: 1080

Rack travel in mm: 11.70...11.80

Del.quantity cm3/: 14.4...14.6

100 s: (14.1...14.8)

cm3 : 0.4Spread

100 s: (0.8)

2nd speed rpm : 350.0 Rack travel in mm : 7.1...7.3

Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3)

Spread cm3 : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1080

: 144.0...146.0 Del.quantity

1000 : (141.5...148.5)

Spread cm3 : 4.00

1000 : (8.00)

RATED SPEED

1st version

Control lever

position degrees: 93...101

M16

Testing: 1st rack travel in: 10.70 rpm : 1130...1140 Speed 2nd rack travel in: 4.00 rpm : 1190...1220 Speed 4th rack travel in: 1350 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 70...78 Setting point w/out bumper spring Speed rpm : 350 Rack travel in mm : 7.2 Testing: Speed rpm : 100 Minimum rack trave: 19.50 rpm : 350 Rack travel in mm : 7.10...7.30 Rack travel in mm : 2.00 Speed rpm : 400...440 SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 FUEL DELIVERY CHARACTERISTICS 1st version : 600 Speed rpm Del.quantity cm3/: 123.0...127.0 1000 s: (120.0...130.0) Spread cn3 : 6.00 1000 s: (9.00) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.70 Speed rpm : 1130...1140 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 130.0...150.0 1000 s: (126.0...154.0) LOW IDLE Speed rpm : 350 Rack travel in mm : 7.10...7.30 Del.quantity cm3/: 14.0...20.0 1000 s: (11.0...23.0) cm3 : 4.50 Spread 1000 s: (7.60)

Remarks:

Note remarks

Test sheet : DEE

: 21.05.92 Edition Replaces : 03.92

Test oil : ISO-4113

Combination no. : 0 402 076 746

Injection pump

Pump designation : PES6P120A720RS3203

: 0 412 026 728 EP type number

Governor

Governor design. : RSV625...1100P2A534-

10

: 0 421 833 373 Governer no.

Customer-spec. information

Customer : JOHN DEERE

: 6076 AZ 030 Engine

1st version kW : 184.0

Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00X3.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Firing order

Prestroke mm

: 3.55...3.65 : (3.50...3.70)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.00...12.10

Del.quantity cm3/: 15.3...15.5

100 s: (15.1...15.7)

Spread cm3 : 0.4

100 s: (0.6)

rpm : 625.0 2nd speed Rack travel in mm : 5.5...5.7 Del.quantity cm3/ : 2.7...3.1

100 s: (2.5...3.3) cm3 : 0.6

Spread 100 s: (0.8)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100 Aneroid pressure h: 1200

: 153.0...155.0 Del.quantity

1000 : (151.0...157.0)

: 4.00 Spread cm3 1000 : (6.50)

RATED SPEED

1st version Control lever

position degrees: 41...49

Testina:

1st rack travel in: 11.00

: 1150...1160 Speed rpm

2nd rack travel in: 4.00

: 1200...1210 Speed rpm

3rd rack travel in: 4.00

: 1190...1220 Speed man

4th rack travel in: 1350

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 22...30

Setting point w/out bumper spring

: 625 riom Rack travel in mm: 5.1

Testing:

Speed : 100 COM Minimum rack trave: 19.00

rpm : 625

Rack travel in mm : 5.00...5.20

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1100 1st speed

Rack travel in m: 12.00...12.10

: 700 rpm 2nd speed

Rack travel in m: 13.40...13.60

Aneroid/Altitude Compensator Test

1st version

Setting

Speed COM : 500 hPa : 1200 Pressure

: 13.40...13.60 Rack travel mm

Measurement

 $1/\min : 500$ Speed

1st pressure hPa : -

Rack travel in m: 10.80...11.00

2nd pressure hPa : 700

Rack travel in m: 11.50...11.60

3rd pressure hPa : 915

Rack travel in m: 12.60...13.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200 : 700 Speed rpm

Del.quantity cm3/: 187.0...191.0

1000 s: (185.0...193.0)

Aneroid pressure h: -

: 800 Speed man

1st version 1mm rack travel less than

Del.quantity cm3/: 119.5...123.5

1000 s: (117.5...125.5)

full load rack tr: 11.00

rpm : 1150...1160 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 90.0...110.0

1000 s: (85.0...715.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

BREAKAWAY

Speed rpm : 625 Rack travel in mm : 5.50...5.70 Del.quantity cm3/ : 27.0...31.0 1000 s: (25.0...33.0)

cm3 : 6.00 Spread

1000 s: (8.00)

Remarks:

: JOHN DEERE # RE47398

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Starting/full-load transition speed from holding magnet = 450 1/min.

Start-of-delivery mark 10.5° cam angle after start of delivery cyl. 1

:

Note remarks

Test sheet

: LIE

Edition

: 26.06.92

Replaces

Test oil

: ISO-4113

Combination no. : 0 402 076 748

Injection pump

Pump designation : PE6P110A720RS3305

EP type number : 0 412 016 740

Governor

Governor design. : RSV300...1100P1A555

Governer no.

: 0 421 833 379

Customer

Customer-spec. information : LIEBHERR

Engine

: D 926 TI

1st version kW

: 210.0

Rated speed

: 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test lines

: 1 680 750 089

Outside diameter

x Wall thickness

x Length mm

: 8.00x2.50x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 3.50...3.60

: (3.45...3.65)

Rack travel in mm : 9.00...12.00

M20

Firing order

: 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance $+ - \cdot : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm: 1000

Rack travel in mm : 13.90...14.10

Del.quantity cm3/: 18.3...18.5

100 s: (18.0...18.7)

Spread

cm3 : 0.4

100 s: (0.7)

2nd speed

rpm : 400.0

Rack travel in mm: 5.8...6.0 Del.guantity cm3/: 1.0...1.6

100 s: (0.7...1.8)

cm3 : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Spread

rpm : 800

Rack travel in mm : 0.30...0.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1000

Aneroid pressure h: 1300

Del.quantity : 183.0....03.2 1000 : (180.5...187.5)

Spread

: 4.00 cm3

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 96...102

Testing:

Speed

1st rack travel in: 12.90

Speed rpm : 1040...1050

2nd rack travel in: 4.00

Speed rpm : 1075...1105 3rd rack travel in: 4.00

rpm : 1090...1120

4th rack travel in: 1260 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 69...77 Setting point w/out bumper spring rpm : 400 Rack travel in mm: 5.4 : 400 Speed rpm Rack travel in mm : 5.80...6.00 Rack travel in mm : 2.00 rpm : 520...580 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 13.90...14.10 2nd speed rpm : 500 Rack travel in m: 13.90...14.10 Aneroid/Altitude Compensator Test 1st version Setting Speed : 550 rpm hPa : 1300 Pressure Rack travel mm : 13.90...14.10 Measurement 1/min: 550 Speed 1st pressure hPa : -Rack travel in m: 12.20...12.40 2nd pressure hPa : 640 Rack travel in m: 13.40...13.60 3rd pressure hPa : 510 Rack travel in m: 12.60...12.70 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: rpm : 550 Speed Del.quantity cm3/: 149.0...151.0 1000 s: (146.5...153.5) **BREAKAWAY**

1st version 1mm rack travel less than

full load rack tr: 12.90 rpm : 1040...1050 Speed

STARTING FUEL DELIVERY

M21

rpm : 100 Speed

Del.quantity cm3/: 135.0...155.0 1000 s: (131.0...159.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.80...6.00
Del.quantity cm3/: 10.0...16.0

1000 s: (7.5...18.5) Spread cm3 : 4.50

1000 s: (7.50)

Remarks:

Note remarks

Test sheet

Edition

: STE : 30.04.92

Replaces

Test oil

: ISO-4113

Combination no.

: 0 402 638 807

Injection pump

Pump designation : PE8P120A120LS7127

EP type number

: 0 412 628 817

Governor

Governor design. : RQ300/1100PA134-2

Governer no. : 0 421 801 364

Customer-spec. information Customer

: SNF

Engine

: WD 815.72/73

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 1 688 901 105

Opening

pressure, bar

: 207...210

Orifice plate

diameter mm

: 0,8

Test lines

: 1 680 750 089

Outside diameter

x Wall thickness

x Length mm

: 8.00x2.50x600

Insp. values in parentheses

(A) Injection pump setting values

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 5.00...5.10

Rack travel in mm : 9.00...12.00

: (4.95...5.15)

M22

Firing order

Phasing

: 0-45-90-135-180-225-

270-315

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm: 1100

Rack travel in mm : 13.80...13.90

Del.quantity cm3/: 20.5...20.7

100 s: (20.2...21.0)

Spread

Spread

cm3 : 0.5

100 s: (0.9)

rpm : 300.02nd speed Rack travel in mm: 6.2...6.4

Del.quantity cm3/: 1.4...2.0

100 s: (1.1...2.3)

cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 600 Speed

Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1100

Aneroid pressure h: 1200

Del.quantity : 205.0...207.0

1000 : (202.0...210.0)

Spread

: 5.00 cm3

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed

rpm : 600

Rack travel in mm: 16.0

Testina:

1st rack travel in: 12.80

Speed rpm : 1150...1155

2nd rack travel in: 4.00

rpm : 1235...1265 Speed

4th rack travel in: 1350

rpm : 0.00...1.00Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 6.3

Testina:

Speed rpm : 100 Minimum rack trave: 7.80 Speed rpm : 300
Rack travel in mm : 6.20...6.40
Rack travel in mm : 2.00

Speed rpm : 400...440

Ameroid/Altitude Compensator Test

1st version

Setting

Speed rom : 500 hPa : 1200 Pressure

Rack travel mm : 13.70...13.80

Measurement

Speed $1/\min : 500$

1st pressure hPa : -

Rack travel in m: 9.70...9.90 2nd pressure hPa : 790

Rack travel in m: 12.80...12.90

3rd pressure hPa : 490

Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 142.0...144.0

1000 s: (139.0...147.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.80

Speed rpm : 1150...1155

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 230.0...260.0

1000 s: (-)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rom : 300

Rack travel in mm : 6.20...6.40

Del.quantity cm3/: 14.0...20.0 1000 s: (11.0...23.0)

cm3 : 8.00 Spread

1000 s: (12,00)

Remarks:

Delivery-valve spring pre-tension

 $3.2...3.4 \, \text{mm}.$

Permissible alteration of 3.0...3.5 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS : 1- 5- 4- 8- 6- 3-7- 2 Firing order Note remarks : STE Test sheet Edition : 21.05.92 Phasina : 0-45-90-135-180-225-Replaces 270-315 Test oil : ISO-4113 Tolerance + - * : 0.50 (0.75) Combination no. : 0 402 638 807 Time to cyl. no. : 1 Injection pump BASIC SETTING Pump designation : PE8P120A120LS7127 EP type number : 0 412 628 817 1st speed rpm: 1100 Governor Governor design. : RQ300/1100PA134-3 Rack travel in mm : 13.80...13.90 : 0 421 801 655 Governer no. Del.guantity cm3/: 20.5...20.7 Customer-spec. information Customer : SNF 100 s: (20.2...21.0) Engine : WD 815.72/73 Spread cm3 : 0.5TEST BENCH REQUIREMENTS 100 s: (0.9) rpm : 300.0Test oil 2nd speed Rack travel in mm: 6.2...6.4 inlet temp. °C : 38...42 Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3) Overflow valve cm3 : 0.8 : 1 417 413 025 Spread 100 s: (1.2) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Test nozzle holder Control-lever position : 1 688 901 105 assembly Degree: -1 Speed rpm : 600 Opening Rack travel in mm : 15.60...16.40 pressure, bar : 207...210 FULL LOAD DELIV. AT FULL LOAD STOP Orifice plate diameter mm : 0.8 1st version Speed rpm : 1100 Aneroid pressure h: 1200 Test lines : 1 680 750 089 : 205.0...207.0 Del.quantity 1000 : (202.0...210.0) : 5.00 Outside diameter Spread cm3 1000 : (9.00) x Wall thickness x Length mm : 8.00x2.50x600 RATED SPEED (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. 1st version per values Setting point: Speed : 600 rpm BEGINNING OF DELIVERY Rack travel in mm: 16.0 Test pressure, bar: 25...27 Testing: : 5.00...5.10 Prestroke mm 1st rack travel in: 12.80 : (4.95...5.15) rpm : 1145...1160

Speed

2nd rack travel in: 4.00

Rack travel in mm : 9.00...12.00

rpm : 1230...1260 Speed

4th rack travel in: 1350

npm : 0.00...1.00Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300 Speed Rack travel in mm: 6.30

Testing:

Speed rpm : 200 Minimum rack trave: 7.80 Speed rpm : 300

Rack travel in mm : 6.20...6.40

Rack travel in mm: 2.00

rpm : 400...440 Speed

Aneroia/Altitude Compensator Test

1st version Setting

Speed rpm : 500 Pressure hPa : 1200

Rack travel mm : 13.70...13.80

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 9.70...9.90

2nd pressure hPa : 790

Rack travel in m: 12.80...12.90

3rd pressure hPa : 490

Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -Speed rpm : 500

Del.quantity cm3/: 142.0...144.0

1000 s: (139.0...147.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.80

rpm : 1145...1160 Speed

STARTING FUEL DELIVERY

Speed : 100 rom

Del.quantity cm3/: 230.0...260.0

1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed (pm : 300)

Rack travel in mm : 6.20...6.40 Del.quantity cm3/: 14.0...20.0

1000 s: (11.0...23.0)

Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Note remarks

Test sheet : STE

Edition : 22.05.92

Replaces

Test oil : ISO-4113

Combination no. : 0 402 638 808

Injection pump

Pump designation : PE8P120A120LS7127

EP type number : 0 412 628 817

Governor

Governor design. : RQV250...1100PA785-3

: 0 421 814 004 Governer no.

Customer-spec. information

Customer : SNF

Engine : WD 815.72/73

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

1 688 901 105 assembly

Openina

: 207...210 pressure, bar

Test lines : 1 680 750 089

Outside diameter x Wall thickness

: 8.00X2.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.00...5.10 Prestroke mm

: (4.95...5.15)

Rack travel in mm : 9.00...12.00

1- 5- 4- 8-7- 2 Firing order

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 13.80...13.90

Del.quantity cm3/: 20.5...20.7

100 s: (20.2...21.0)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 250.0Rack travel in mm: 6.3...6.5 Del.quantity cm3/: 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.8100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 250 1st speed

: 0.90...1.40 travel mm

2nd speed rpm : 355

: 1.70...2.20 travel mm

3rd speed rpm : 410

: 2.20...2.70 travel mm 4th speed rpm : 1150

: 8.30...8.70 travel mm : 1390 5th speed rpm

: 11.00...12.00 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 Speed rpm : 1220

Rack travel in mm : 11.50...14.10

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed Aneroid pressure h: 1200

Aneron F. Del.quantity 1000 : 205.0...207.0

: (202.0...210.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 103...111

Testina:

1st rack travel in: 12.80

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

rpm : 1235...1265 Speed

4th rack travel in: 1350

rpm : 0.00...1.00Speed

LOW IDLE 1

Control lever

position degrees: 70...78

Testina:

Speed MON : 150

Minimum rack trave: 8.30

rpm : 250 Speed

Rack travel in mm : 6.30...6.50 Rack travel in mm: 2.00

: 360...420 Speed rpm

CONSTANT REGULATION

Speed rpm : 350...420

Aneroid/Altitude Compensator Test

ist version

Setting

Speed : 500 rpm

hPa : 1200 Pressure

Rack travel mm : 13.80...13.90

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 9.70...9.90

2nd pressure hPa : 790

Rack travel in m: 12.80...12.90

3rd pressure hPa : 490

Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/: 142.0...144.0

1000 s: (139.0...147.0)

BREAKAWAY

M27

1st version

1mm rack travel less than

full load rack tr: 12.80

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 230.0...260.0 1000 s: (226.0...264.0)

Rack travel in mm : 20.00...21.00

i.OW IDLE

rpm : 250

Rack travel in mm : 6.30...6.50

Del.quantity cm3/: 14.0...20.0 1000 s: (11.0...23.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB 22,0 b Edition : 26.06.92 Replaces : 03.92 Test oil : ISO-4113 Combination no. : 0 402 640 812 Injection pump Pump designation : PE12P12OA52OLS7820 EP type number : 0 412 620 814 Governor Governor design. : RQV350...1150PA870-4 Governer no. : 0 421 813 717 Customer-spec. information Customer : MERCEDES-BENZ Engine : OM 444 LA 1st version kW : 736.0 : 2300 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Overflow quantity min. 1/h: 150...170 Test nozzle holder : 1 688 901 019 assembly Opening pressure, bar : 207...210 Orifice plate diameter mm : 0,8

Test lines : 1 680 750 075 Outside diameter x Wall thickness x Length mm : 8.00x2.50x1000 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY Test pressure, bar: 25...27 : 4.40...4.50 Prestroke mm : (4.35...4.55) Rack travel in mm : 19.00...21.00 : 12-- 1- 5- 9- 8- 3-4- 11- 10- 2- 6- 7 Firing order Phasing : 0-45-60-105-120-165-180-225-240-285-300-345 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 12 BASIC SETTING 1st speed rom: 1150 Rack travel in mm: 14.20...14.30 Del.quantity cm3/: 30.9...31.1 100 s: (30.6...31.4) Spread cm3 : 0.6100 s: (1.0) 2nd speed rpm : 350.0 Rack travel in mm: 5.0...6.6 Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5) Spread cm3 : 0.8100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 350 1st speed : 1.30...1.80 travel mm 2nd speed rpm : 600 : 3.30...3.80 travel mm 3rd speed rpm : 960 travel mm : 5.30...5.80 4th speed rpm : 1206 : 7.90...8.40 : 1291 travel mm 5th speed rpm travel mm : 9.80...10.30 GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1275 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1150 Speed Aneroid pressure h: 1800 Del.quantity : 309.0...311.0 1000 : (306.0...314.0) Spread : 6.00 cm3 1000 : (10.00) RATED SPEED 1st version Control lever position degrees: 113...121 Testing: 1st rack travel in: 13.30 Speed rpm : 1190...1200 2nd rack travel in: 4.00 rpm : 1270...1300 Speed 4th rack travel in: 1350 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 62...70 Testing: Speed MOL Minimum rack trave: 7.00 MCiu : 350 Speed Rack travel in mm : 5.00...5.60 CONSTANT REGULATION rpm : 350...600 Speed Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm hPa : -Pressure : 7.80...8.10 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : 300 Rack travel in m: 9.40...9.50 2nd pressure hPa : 1100 Rack travel in m: 13.60...13.80 START CUT-OUT Speed 1/min: 310 (330)

1st version Aneroid pressure h: 1800 : 750 Speed rpm Del.quantity cm3/: 303.0...313.0 1000 s: (300.0...316.0) cm3 : 10.00Spread 1000 s: (15.0) Aneroid pressure h: 1800 Speed : 1150 rpa Del.quantity cm3/: 240.0...243.0 * 1000 s: (237.0...246.0) cm3 : 10.00 Spread 1000 s: (15.0) Aneroid pressure h: -: 500 Speed rpm Del.quantity cm3/: 128.0...130.0 1000 s: (125.0...133.0) cm3 : 10.00Spi 2ad 1000 st (15.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.30 Speed rpm : 1190...1200 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 330.0...350.0 1000 s: (326.0...354.0) Remarks: * = Set at reduced-delivery stop.

N01

FUEL DELIVERY CHARACTERISTICS

BOSCH INJ. PUMP TEST SPECIFICATIONS BEGINNING OF DELIVERY Test pressure, bar: 25...27 Note remarks : 4.40...4.50 : (4.35...4.55) Prestroke mm Test sheet : MB 22,0 c Rack travel in mm: 19.00...21.00 Firing order: 12-1-5-9-8-3-4-11-10-2-6-7 Edition : 26.06.92 Replaces : 03.92 Test oil : ISO-4113 Combination no. : 0 402 640 817 Injection pump Phasing : 0-45-60-105-120-165-Pump designation : PE12P12OA52OLS7826 180-225-240-285-300-EP type number : 0 412 620 817 345 Governor Tolerance + - ° : 0.50 (0.75) Governor design. : RQV350...1150PA870-4 Governer no. : 0 421 813 717 Time to cyl. no. : 12 Customer-spec. information BASIC SETTING Customer : MERCEDES-BENZ rpm: 1150 1st speed : OM 444 LA Engine Rack travel in mm : 15.10...15.20 1st version kW : 736.0 : 2300 Rated speed Del.guantity cm3/: 30.9...31.1 TEST BENCH REQUIREMENTS 100 s: (30.6...31.4) Test oil Spread cm3 : 0.6inlet temp. °C : 38...42 100 s: (1.0) Overflow valve : 1 419 992 198 rpm : 350.02nd speed Rack travel in mm: 5.3...5.9 Inlet press., bar: 1.50 Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5) **Overflow** Spread cm3 : 0.8quantity min. 1/h: 150...170 100 s: (1.2) Test nozzle holder (B) Setting of injection pump : 1 688 901 019 assembly with governor Opening GUIDE SLEEVE TRAVEL pressure, bar : 207...210 rpm : 350 1st speed : 1.30...1.80 travel mm Orifice plate 2nd speed rpm : 600 diameter mm : 0.8 : 3.30...3.80 travel mm 3rd speed rpm : 960 : 5.30...5.80 travel mm Test Lines : 1206 : 1 680 750 075 4th speed rom : 7.90...8.40 travel mm Outside diameter 5th speed rpm : 1291

GUIDE SLEEVE POSITION
Control-lever position
Degree: -1
Speed rpm: 1275
Rack travel in mm: 15.20...17.80

travel mm

: 9.80...10.30

x Wall thickness

per values

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

: 8.00x2.50x1000

x Length mm

FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1150 Speed Aneroid pressure h: 1800 Del.quantity : 507.0...314.0) 1000 : (10.00) RATED SPEED 1st version Control lever position degrees: 113...121 Testing: 1st rack travel in: 14.20 rpm : 1190...1200 Speed 2nd rack travel in: 4.00 rpm : 1270...1300 Speed 4th rack travel in: 1350 Speed rom : 0.00...1.00LOW IDLE 1 Control lever position degrees: 62...70 Testing: : 250 Speed rom Minimum rack trave: 7.30 : 350 Speed mcm Rack travel in mm : 5.30...5.90 CONSTANT REGULATION rpm : 350...600 Speed Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rom Pressure hPa : -: 8.20...8.50 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : 300 Rack travel in m: 9.80...9.90 2nd pressure hPa : 1100

Rack travel in m: 14.00...14.20 START CUT-OUT 1/min : 310 (330) Speed FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1800 Speed : 750 rpm Del.quantity cm3/: 303.0...313.0 1000 s: (300.0...316.0) Spread cm3 : 10.001000 s: (15.0) Aneroid pressure h: 1800 : 1150 Speed rpm Del.quantity cm3/: 240.0...243.0 * 1000 s: (237.0...246.0) cm3 : 10.00Spread 1000 s: (15.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 128.0...130.0 1000 s: (125.0...133.0) cm3 : 10.00Spread 1000 s: (15.0) **BREAKAWAY** 1st version 1mm rack travel less than

STARTING FUEL DELIVERY

Speed

full load rack tr: 14.20

Speed : 100 rpm Del.quantity cm3/: 330.0...350.0 1000 s: (326.0...354.0)

rpm : 1190...1200

Remarks:

* = Set at reduced-delivery stop.

N₀3

Note remarks

Test sheet : MB 22,0 c 3 Edition : 26.06.92 Replaces : 06.91 Test oil : ISO-4113

Combination no. : 0 402 640 829

Injection pump

Pump designation : PE12P120A520LS7826 : 0 412 620 817 EP type number

Governor

Governor design. : RQV350...900PA870-14

: 0 421 813 935 Governer no.

Customer-spec. information

: MBERCEDES-BENZ Customer

Engine : OM 444 LA

: 500.0 1st version kW : 1800 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 150...170

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50 : (4.35,..4.55)

Rack travel in mm : 19.00...21.00 Firing order

: 12- 1- 5- 9- 8- 3-

4-11-10-2-6-7

Phasing : 0-45-60-105-120-165-

180-225-240-285-300-

345

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 12

BASIC SETTING

1st speed rpm: 900

Rack travel in mm : 12.90...13.00

Del.quantity cm3/: 23.6...23.8

100 s: (23.3...24.1)

cm3 : 0.6Spread

100 s: (1.0)

rpm : 350.02nd speed Rack travel in mm: 5.3...5.9

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.8100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

: 1.30...1.80 travel mm

2nd speed rpm : 655

: 4.80...5.30 travel mm

rpm : 960 3rd speed

: 8.70...9.20 travel mm

4th speed rpm : 1120

: 11.00...12.00 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 rpm : 950

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 900 Speed Aneroid pressure h: 1600

Del.quantity : 200.0...241.0)

: 6.00

1000 : (10.00)

RATED SPEED

1st version Control lever

position degrees: 118...126

Testing:

1st rack travel in: 11.90 Speed rpm : 940...950

2nd rack travel in: 4.00

rpm : 1010...1040 Speed

4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 62...70

Testing:

Speed rom Minimum rack trave: 7.30 Speed : 350 mon

Rack travel in mm : 5.30...5.90

CONSTANT REGULATION

Speed rpm : 350...500

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rom Pressure hPa : -

: 8.10...8.40 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : 400

Rack travel in m: 9.30...9.50

2nd pressure hPa : 700

Rack travel in m: 10.90...11.10

START CUT-OUT

Speed 1/min: 310 (330)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1600

: 750 Speed rpm

Del.quantity cm3/: 230.0...234.0 1000 s: (227.0...237.0)

Spread cm3 : 10.00

1000 s: (15.0)

Aneroid pressure h: -

: 500 Speed rpm

Del.quantity cm3/: 124.0...126.0

1000 s: (121.0...129.0)

cm3 : 10.00Spread

1000 s: (15.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.90

rpm : 940...950 Speed

STARTING FUEL DELIVERY

: 100 Speed r par

Del.quantity cm3/: 330.0...350.0

1000 s: (326.0...354.0)

Remarks:

Note remarks

Test sheet

: MAN

Edition

: 03.07.92

Replaces

Test oil

: ISO-4113

Combination no.

: 0 402 640 838

Injection pump

Pump designation: PE12P120A520LS7829-1

EP type number

: 0 412 620 827

Governor

Governor design.

: RQV300...1150PA1039-

Governer no.

1K : 0 421 815 315

Customer-spec. information

Customer

: MAN

Engine

: D2842LYE

1st version kW

Rated speed

: 809.0

: 2300

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 1 688 901 019

Opening

pressure, bar

: 207...210

Orifice plate

diameter mm

: 0,8

Test lines

: 1 680 750 075

Outside diameter

x Wall thickness

x Length mm

: 8.00X2.50X1000

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.50...4.60 Prestroke mm : (4.45...4.65)

Rack travel in mm : 9.00...12.00 Firing order : 12-1-5-9-8-3-4-11-10-2-6-7

Phasing : 0-45-60-105-120-165-

Phasing

: 130-225-240-285-300-

345

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 12

BASIC SETTING

1st speed rpm: 1150

Rack travel in mm : 13.80...13.90

Del.quantity cm3/: 30.4...30.6

100 s: (30.1...30.9)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 500 2nd speed

Rack travel in mm: 9.0...9.2 Del.quantity cm3/: 14.9...15.1

100 s: (14.6...15.4)

cm3 : 0.8 Spread

100 s: (1.2)

3rd speed rpm : 300 Rack travel in mm : 7.3...7.5 Del.quantity cm3/ : 5.2...6.0 *

100 s: (-)

Spread cm3 :

100 s: (-)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 : 2.00...2.20 1st speed

travel mm rpm : 450 2nd speed

: 4.00...4.40 travel mm

rpm : 800 3rd speed

: 6.70...7.10 travel mm

4th speed rpm : 1200

travel mm : 10.30...10.50

rpm : 1400 5th speed

: 13.00...14.00 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 rpm : 1280 Speed Rack travel in mm: 11.50...14.10 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1150 Aneroid pressure h: 1300 : 304.0...306.0 Del.quantity 1000 : (301.0...309.0) : 5.00 Spread cm3 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 116...124 Testing: 1st rack travel in: 12.80 rpm : 1190...1200 Speed 2nd rack travel in: 4.00 Speed rpm : 1300...1330 4th rack travel in: 1400 ram : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 70...78 Testing: Speed rpm : 200 Minimum rack trave: 6.70 rpm : 300 Rack travel in mm : 5.10...5.30 CONSTANT REGULATION Speed rpm : 270...390 Aneroid/Altitude Compensator Test 1st version Setting : 900 Speed rpm hPa : 1300 Pressure Rack travel mm : 13.80...13.90 Measurement 1/min: 900 Speed 1st pressure hPa : -Rack travel in m: 9.00...9.20 2nd pressure hPa : 200 Rack travel in m: 9.30...9.40

START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 149.0...151.0 1000 s: (146.0...154.0) cm3 : 8.00 Spread 1000 s: (12.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.80 rpm : 1190...1200 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/ : 120.0...120.0 * 1000 s: (-) Speed rpm : 100 Del.quantity cm3/: - ** 1000 s: (-) Rack travel in mm : 17.5...21.0 HIGH IDLE 1st version Aneroid pressure h: -Speed rpm : 500 Rack travel in mm: < 7.00 Del.quantity cm3/: - ** 1000 s: (-) 2nd version Aneroid pressure h: rpm : 500 Speed Rack travel in mm: < 7.50 Del.quantity cm3/: < 50.0 1000 s: (-) 3rd version Aneroid pressure h: -Speed rpm : 500 Rack travel in mm : 8.50...8.70 Del.quantity cm3/ : 125.0... 1000 s: (-)

3rd pressure hPa : 800

Rack travel in m: 12.10...12.50

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.30...7.50
Del.quantity cm3/ : 52.0...60.0 *
1000 s: (-)

Remarks:

: MAN-NR. 3-7226

* applies to cylinders 4, 5, 6, 8, 10 and 12 ** applies for cylinders 1, 2, 3, 7, 9 and 11

Start-of-delivery blocking 12° after start of delivery of cylinder no. 1.

APPLICATION

Ship

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 4.50...4.60 : (4.45...4.65) Note remarks Rack travel in mm : 9.00...12.00 : 12- 1- 5- 9- 8- 3-4- 11- 10- 2- 6- 7 Firing order : MAN Test sheet Edition : 03.07.92 Replaces Test oil : ISO-4113 Phasing : 0-45-60-105-120-165-Combination no. : 0 402 640 839 180-225-240-285-300-Phasina : 345 Injection pump Tolerance + - ° : 0.50 (0.75) Pump designation : PE12P12OA52OLS7829-1 EP type number : 0 412 620 827 Time to cyl. no. : 12 Governor Governor design. : RQV300...1150PA1039K BASIC SETTING Governer no. : 0 421 815 314 1st speed rpm: 1150 Customer—spec. information Customer : MAN Rack travel in mm : 14.70...14.80 : D2842LZE Engine Del.quantity cm3/: 33.4...33.6 : 809.0 1st version kW 100 s: (33.1...33.9) Rated speed : 2300 Spread cm3 : 0.5TEST BENCH REQUIREMENTS 100 s: (0.9) Test oil inlet temp. °C : 38...42 rpm : 500 2nd speed Rack travel in mm : 9.0...9.2 Del.quantity cm3/ : 14.9...15.1 Overflow valve : 1 417 413 025 100 s: (14.6...15.4) cm3 : 0.8 Spread Inlet press., bar: 1.50 100 s: (1.2) rpm : 300 3rd speed Test nozzle holder Rack travel in mm : 7.30...7.50 : 1 688 901 019 Del.quartity cm3/ : 5.2...5.6 * assembly 100 s: (-) Opening Spread cm3 : pressure, bar : 207...210 100 s: (-) Orifice plate (B) Setting of injection pump diameter mm : 0,8 with governor GUIDE SLEEVE TRAVEL Test lines : 1 680 750 075 1st speed rpm : 300 : 2.00...2.20 travel mm Outside diameter 2nd speed rpm : 450 x Wall thickness : 4.00...4.40 travel mm x Length mm : 8.00x2.50x1000 3rd speed : 800 rpm 6.70...7,10 travel mm (A) Injection pump setting values 4th speed 1200 rpm Insp. values in parentheses 10.30...10.50 travel mm Set equal delivery quant. 1400 5th speed rpm per values : 13.00...14.00 travel mm BEGINNING OF DELIVERY GUIDE SLEEVE POSITION Control-lever position Test pressure, bar: 25...27

Degree: -1

rpm : 1270 START CUT-OUT Rack travel in mm : 12.40...15.00 Speed 1/min : 220 (240) FULL LOAD DELIV. AT FULL LOAD STOP FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 1150 Aneroid pressure h: 1300 1st version : 334.0...336.0 Del.quantity Aneroid pressure h: -1000 : (331.0...339.0) Spread cm3 : 5.00 1000 : (9.00) RATED SPEED 1000 s: (12.0) 1st version Control lever BREAKAWAY position degrees: 116...124 1st version Testing: 1mm rack travel less than 1st rack travel in: 13.70 rpm : 1190...1200 Speed full load rack tr: 13.70 2nd rack travel in: 4.00 rpm : 1190...1200 Speed rpm : 1300...1330 Speed 4th rack travel in: 1400 STARTING FUEL DELIVERY rpm : 0.00...1.00Speed LOW IDLE 1 Speed rpm : 100 Del.quantity cm3/ : 100.0...120.0 * Control lever position degrees: 71...79 1000 s: (-) Testing: rpm : 100 Speed Speed : 200 Del.quantity cm3/: - ** rpm Minimum rack trave: 6.70 1000 s: (-) rpm : 300 Speed Rack travel in mm : 17.5...21.0 Rack travel in mm : 5.10...5.30 HIGH IDLE CONSTANT REGULATION Speed rpm : 270...390 1st version Aneroid pressure h: -Aneroid/Altitude rpm : 500 Speed Rack travel in mm : < 7.00 Compensator Test Del.quantity cm3/: - **1000 s: (-) 1st version Setting 2nd version rpm : 900 Speed Speed rom : 500 hPa : 1300 Pressure Rack travel in mm : < 7.50 Del.quantity cm3/: < 50.0 1000 s: (-) : 14.70...14.80 Rack travel mm Measurement Speed 1/min: 900 3rd version rpm : 500 Speed 1st pressure hPa : -Rack travel in mm : 8.50...8.70 Del.quantity cm3/: 125.0... 1000 s: (-) Rack travel in m: 9.00...9.20 2nd pressure hPa : 200 Rack travel in m: 9.30...9.40 3rd pressure hPa : 800 LOW IDLE Rack travel in m: 12.10...12.50

Speed

rpm : 300

Rack travel in mm : 7.30...7.50 Del.quantity cm3/ : 52.0...60.0 * 1000 s: (-)

Remarks:

: MAN-NR. 3-7227

* applies to cylinders 4, 5, 6, 8 ,10 and 12 ** applies for cylinders 1, 2, 3, 7, 9 and 11

Start-of-delivery blocking 12° after start of delivery of cylinder no. 1.

APPLICATION

Ship

Note remarks

Test sheet

: 03.07.92 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 402 646 798

Injection pump

Pump designation : PE6P120A320LS7854

EP type number : 0 412 626 872

Governor

Governor design. : RQV350...950PA870-17

: 0 421 814 005 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

: 0M441 LA Engine

1st version kW : 250.0 : 1900 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow.

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter

x Wall thickness

x Length mm : 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 : (5.15...5.35) Prestroke mm

Rack travel in mm : 20.00...21.00 Firing order : 6-3-5-2-4-1

Phasina : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 13.90...14.10

Del.guantity cm3/: 23.7...23.9

100 s: (23.4...24.2)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 350.02nd speed Rack travel in mm: 5.1...5.7 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6 Spread 100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

: 1.30...1.80 travel mm

2nd speed rpm : 570

: 3.90...4.40 travel mm

3rd speed rpm : 850

: 5.70...6.20 travel mm

4th speed rpm : 1008

travel mm : 7.40...7.90

5th speed rom : 1110

travel mm : 9.80...10.30

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1070

Rack travel in mm : 11.70...14.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 600 Speed Aneroid pressure h: 1200 Del.quantity : 237.u...242.0) cm3 : 5.00 1000 : (9.00) RATED SPEED 1st version Control Lever position degrees: 113...121 Testing: 1st rack travel in: 13.00 rpm : 990...1000 Speed 2nd rack travel in: 4.00 rpm : 1055...1085 Speed 4th rack travel in: 1300 Speed rpm : 0.00...1.40LOW IDLE 1 Control lever position degrees: 63...71 Testing: Speed : 250 rom Minimum rack trave: 7.70 Speed rpm : 350 Rack travel in mm : 5.30...5.50 CONSTANT REGULATION rpm : 430...480 Speed Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm Pressure hPa : 1200 : 13.90...14.10 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 10.50...10.70 2nd pressure hPa : 350 Rack travel in m: 10.40...11.50 3rd pressure hPa : 600 Rack travel in m: 12.70...12.90 START CUT-OUT 1/min: 270 (290) Speed FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1200 Speed rpm : 950 Dei.quantity cm3/: 231.0...234.0 1000 s: (228.0...237.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 133.0...135.0 1000 s: (130.0...138.0) Spread cm3 : 8.001000 s: (12.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.00 Speed rpm : 990...1000 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 220.0...240.0 1000 s: (216.0...244.0) Remarks: APPLICATION Pistenbully

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

Test sheet : MB

: 03.07.92 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 402 646 799

Injection pump

Pump designation : PE6P120A320LS7852

EP type number : 0 412 626 871

Governor

Sovernor design. : RQ300/950PA1031-5 : 0 421 801 657

Governer no.

Customer-spec. information Customer : MERCEDES-BENZ

: 0M441 LA Engine

: 250.0 1st version kW : 1900 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 105

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35) Rack travel in mm : 20.00...21.00

: 6-3-5-2-4-1 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rom: 600

Rack travel in mm : 13.90...14.10

Del.quantity cm3/: 23.7...23.9

100 s: (23.4...24.2)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm: 5.6...6.2 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2 rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 1000

: 237.0...239.0 Del.quantity

1000 : (234.0...242.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Setting point:

: 600 Speed rpm Rack travel in mm : 20.0

1st rack travel in: 13.00 Speed rpm : 990...1005 2nd rack travel in: 4.00 rpm : 1070...1100 Speed 4th rack travel in: 1300 Speed rpm : 0.00...1.50LOW IDLE 1 Setting point w/out bumper spring rpm : 300° Rack travel in mm: 5.9 Testing: Speed rpm : 200 Minimum rack trave: 8.10 rpm : 300 Speed Rack travel in mm : 5.80...6.00 Rack travel in mm : 2.00 rpm : 380...420 Speed Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 500 Pressure hPa : 1000 Rack travel mm : 13.90...14.10 Measurement Speed 1/min: 500 1st pressure hPa : -Rack travel in m: 10.50...10.70 2rd pressure hPa : 275
Rack travel in m: 11.20...11.40 3rd pressure hPa : 580 Rack travel in m: 12.90...13.10 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 : 950 Speed rpm Del.quantity cm3/: 231.0...234.0 1000 s: (228.0...237.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 133.0...135.0 1000 s: (130.0...138.0)

Testing:

Spread cm3 : 8.00 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.00 Speed rpm : 990...1005

Remarks:

Note remarks

Test sheet : SCA Edition : 03.07.92

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 646 910

Injection pump

Pump designation : PE6P12OA32ORS7138 EP type number : 0 412 626 822

Governor

Governor design. : RQV200...1100PA712-5

Governer no. : 0 421 813 951

Customer-spec. information Customer : SCANIA

Engine : DS9 08

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 104 assembly

Openina .

pressure, bar : 250...253

Orifice plate

diameter mm : 0.7

: 1 680 750 008 Test lines

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50 : (4.35...5.55)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 700

Rack travel in mm: 13.00...13.10

Del.quantity cm3/: 18.0...18.2

100 s: (17.7...18.5)

Spread cm3 : 0.6

100 s: (0.9)

rpm : 225.0 2nd speed

Rack travel in mm: 4.9...5.1

Del.quantity cm3/: 1.2...1.6

100 s: (-) cm3 : 0.5

Spread 100 s: (0.9)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 225 1st speed

: 0.90...1.30 travel mm

rpm : 350 2nd speed

: 2.50...3.10 travel mm

rpm : 650 3rd speed

: 5.40...6.00 travel mm

rpm : 1145 4th speed

: 8.90...9.10 travel mm

rpm : 1280 5th speed

: 10.10...10.50 travel mm

GUIDE SLEEVE POSITION

Control-lever position Degree: -1

rpm : 1130 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 180.0...185.0)

Spread cm3 : 6.00 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 114...122

Testing:

ist rack travel in: 12.00

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

: 1275...1305 Speed rpm

4th rack travel in: 1400

Speed right : 0.00...1.00

LOW IDLE 1

Control Lever

position degrees: 61...69

Testing:

Speed : 100 rpm

Minimum rack trave: 6.50 rpm : 225

Rack travel in mm : 4.90...5.10

Rack travel in mm: 2.00

Speed rpm : 300...360

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500 hPa : 900 Pressure

Rack travel mm : 13.00...13.10

Measurement

Speed 1/min: 500

1st pressure hPa : -

Rack travel in m: 9.90...10.30

2nd pressure hPa : 480

Rack travel in m: 12.30...12.40

3rd pressure hPa : 220

Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed : 1100 rpm

Del.quantity cm3/: 163.0...171.0 1000 s: (161.0...173.0)

Aneroid pressure h: -Speed

: 500 rpm

Del.quantity cm3/: 114.0...118.0

1000 s: (112.0...120.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.00

rbm : 1140...1150 Speed

STARTING FUEL DELIVERY

Speed rpm : 190 Del.quantity cm3/ : 120.0...140.0 1000 s: (-)

Rack travel in mm : 9.90...10.30

LOW IDLE

rpm : 225 Speed

Rack travel in mm : 4.90...5.10

Remarks:

Delivery-valve spring pre-tension 3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm.

Start-of-delivery setting with ROBO diaphragm.

Note remarks

Test sheet : MB

Edition : 26.06.92

Replaces

Test oil : ISO-4113

Combination no. : 0 402 646 915

Injection pump

Pump designation: PE6P120A320LS7836-10

EP type number : 0 412 626 854

Governor

Governor design. : RQ300/1050PA972 : 0 421 801 542 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

: 08461 LA Engine

: 200.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter

x Wall thickness

: 8.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.50...5.60 Prestroke mm

: (5.45...5.65) Rack travel in mm : 20.00...21.00

Firing order : 6-3-5-2-4-1

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 12.40...12.60

Del.quantity cm3/: 18.2...18.4

100 s: (17.9...18.7)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 300.02nd speed Rack travel in mm : 5.3...5 9 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 800

Del.quantity : 182.0...184.0 1000 : (179.0...187.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600 Rack travel in mm: 20.0 Testina: Speed

1st rack travel in: 12.10

rpm : 1090...1105

2nd rack travel in: 4.00

1165...1195 Speed rom

4th rack travel in: #300

rpm : 0.00...1.50 Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 5.6

Testing:

: 200 Speed rpm Minimum rack trave: 7.50 : 300 rpm Speed

Rack travel in mm : 5.50...5.70

Rack travel in mm : 2.00 : 380...420 Speed rpm

Aneroid/Altitude Compensator Test

1st version Setting

: 600 Speed CDM) Pressure hPa : 800

Rack travel mm : 12.40...12.60

Measurement

1/min : 600Speed

1st pressure hPa : 250

Rack travel in m: 10.90...11.10

2nd pressure hPa : 400

Rack travel in m: 11.80...12.00

3rd pressure hPa : 1000 Rack travel in m: 12.60...12.80

4th pressure hPa : 1150

Rack travel in m: 12.90...13.10

5th pressure hPa : -

Rack travel in m: 10.30...10.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400 : 1050 Speed ngn

Del.quantity cm3/: 201.0...204.0 1000 s: (198.0...207.0)

: 8.00 cm3

1000 s: (12.0)

Aneroid pressure h: 1400 : 800

rpm Del.quantity cm3/: 202.0...206.0 1000 s: (199.0...209.0)

Spread

cm3 : 8.00

1000 s: (12.0)

Aneroid pressure h: -

: 500 Speed rom Del.quantity cm3/: 132.0...134.0

1000 s: (129.0...137.0)

Spread

cm3 : 8.00

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.10

Speed rpm : 1090...1105

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/ : $50.0...70.0 \star$

1000 s: (46.0...74.0)

Rack travel in mm: 10.30...10.60

Remarks:

* Set warm-start quantity at excess-fuel stop for starting on governor housing

N19

Spread

Note remarks

Test sheet : MB

Edition : 26.06.92

Replaces

: ISO-4113 Test oil

: 0 402 646 916 Combination no.

Injection pump

Pump designation: PE6P120A320LS7836-10

EP type number : 0 412 626 854

Governor

Governor design. : RQV300...1050PA797

-17

: 0 421 813 884 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M401 LA

1st version kW : 200.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 105

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter x Wall thickness

x Length mm : 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60

: (5.45...5.65)

Rack travel in mm : 20.00...21.00

Firing order : 6-3-5-2-4-1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl, no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 12.40...12.60

Del.quantity cm3/: 18.2...18.4

100 s: (17.9...18.7)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.3...5.9 Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6Spread 100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

1.00...1.50 travel mm

2nd speed rpm : 637

: 4.90...5.40 travel mm

3rd speed : 830 rpm

: 6.00...6.50 travel mm

4th speed : 1107 rpm

: 8.30...8.80 travel mm

5th speed : 1218 rpm

: 9.80...10.30 travel mm

GUIDE SLEEVE POSITION

Control-lever position Degree: -1

Speed rpm : 1125

Rack travel in mm : 15.20...17.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed rom : 600 Aneroid pressure h: 800 : 182.0...184.0 Del.quantity 1000 : (179.0...187.0) : 5.00 Spread cm31000 : (9.00) RATED SPEED 1st version Control Lever position degrees: 118...126 Testing: 1st rack travel in: 12.10 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 rpm : 1195...1225 Speed 4th rack travel in: 1300 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 80...88 Testing: Speed : 200 MCL Minimum rack trave: 7.60 : 300 rom Rack travel in mm : 5.50...5.70 CONSTANT REGULATION rpm : 300...500 Speed Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 rpm hPa : 800 Pressure Rack travel mm : 12.40...12.60 Measurement $1/\min : 600$ Speed 1st pressure hPa : 250 Rack travel in m: 10.90...11.10 2nd pressure hPa : 400 Rack travel in m: 11.80...12.00

START CUT-OUT Speed 1/min : 240 (260) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1500 rpm : 1050 Speed Del quantity cm3/: 201.0...204.0 1000 s: (198.0...207.0) Spread cm3: 8.00 1000 s: (12.0) Aneroid pressure h: 1500 Speed rom : 800 Del.quantity cm3/: 205.0...209.0 1000 s: (202.0...212.0) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 132.0...134.0 1000 s: (129.0...137.0) Spread cm3: 8.00 1000 s: (12.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.10 rpm : 1090...1100 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 200.0...220.0 1000 s: (196.0...224.G) Remarks:

3rd pressure hPa : 1000

5th pressure hPa

Rack travel in m: 12.60...12.80 4th pressure hPa : 1150 Rack travel in m: 12.90...13.10

Rack travel in m: 10.30...10.60

Note remarks

Test sheet : MB

Edition : 26.06.92

Replaces

Test oil

: ISO-4113

Combination no.

: 0 402 646 917

Injection pump

Pump designation : PE6P120A320LS7834-10

EP type number

: 0 412 626 853

Governor

Governor design. : RQ300/950PA971

Governer no.

: 0 421 801 543

Customer-spec. information

Customer

: MERCEDES-BEN7

Engine

: 0M401 LA

1st version kW

: 230.0

Rated speed

: 1900

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly

: 1 688 901 105

Opening

pressure, bar

: 207...210

Orifice plate

diameter mm

: 0,8

Test lines

: 1 680 750 075

Outside diameter

x Wall thickness

x Length mm

: 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 5.50...5.60

: (5.45...5.65)

Firing order

Rack travel in mm : 20.00...21.00 : 6-3-5-2-4-1

Fhasing

: 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 6

BASIC SETTING

1st speed

rpm : 550

Rack travel in mm : 15.20...15.40

Del.quantity cm3/: 24.0...24.2

100 s: (23.7...24.5)

Spread

cm3 : 0.6

100 s: (0.9)

2nd speed

rpm : 300.0

Rack travel in mm: 6.3...6.9 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6

Spread

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 550

Aneroid pressure h: 1200

Del.quantity

: 240.0...242.0

cm3

1000 : (237.0...245.0)

Spread

: 6.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

rpm

: 600

Speed

Rack travel in mm: 20.0

Testing: 1st rack travel in: 13.90 rpm : 990...1005 2nd rack travel in: 4.00 Speed rpm : 1070...1100 4th rack travel in: 1200 Speed rpm : 0.00...1.40LOW IDLE 1

Setting point wout bumper spring mpm : 300 Rack travel in mm: 6.6

Testing: Speed rpm : 200 Minimum rack trave: 8.50

Speed rpm : 300
Rack travel in mm : 6.30...6.90
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL Dimension a mm : 0.35 2nd speed rpm : 950

Rack travel in m: 14.90...15.10

3rd speed rpm : 800

Rack travel in m: 15.20...15.40

Aneroid/Altitude Compensator Test

1st version Setting Speed rpm

: 500 Pressure hPa : 1200 Rack travel mm : 15.20...15.40

Measurement

 $1/\min : 500$ Speed

1st pressure hPa : -

Rack travel in m: 10.10...10.40

2nd pressure hPa : 250

Rack travel in m: 10.60...10.70

3rd pressure hPa : 750

Rack travel in m: 13.80...14.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200 Speed rpm : 950

Del.quantity cm3/: 236.0...239.0

1000 s: (233.0...242.0)

Spread cm3 : 8.001000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/: 134.0...136.0 1000 s: (131.0...139.0)

cm3 : 8.00Spread

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.90

Speed rpm : 990...1005

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 40.0...70.0 *

1000 s: (36.0...74.0)

Remarks:

* Set warm-start quantity at excess-fuel stop for starting

on governor housing

Note remarks

Test sheet : MB

: 26.06.92 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 402 646 917X

Injection pump

Pump designation: PE6P120A320LS7834-10

EP type number : 0 412 626 853

Governor

Governor design. : RQ300/950PA971 : 0 421 801 543 Governer no.

: 0180740402 Cust. part no.

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M401 LA Engine

1st version kW : 230.0 : 1900 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

: 1 680 750 075 Test lines

Outside diameter

x Wall thickness

x Length mm : 8.00x2.50x1000 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60

: (5.45...5.65)

Rack travel in mm : 20.00...21.00 Firing order : 6-3-5-2-4-1

: 0-69-120-180-240-309 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 550

Rack travel in mm : 15.20...15.40

Del.quantity cm3/: 24.0...24.2

100 s: (23.7...24.5)

Spread cm3 : 0.6

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm: 6.3...6.9 Del.guantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 550 Speed Aneroid pressure h: 1200

: 240.0...242.0 Del.quantity

1000 : (237.0...245.0)

: 6.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version Setting point: Speed riom : 600 Rack travel in mm: 20.0 Testing: 1st rack travel in: 13.90 rpm : 990...1005 Speed 2nd rack travel in: 4.00 rpm : 1070...1100 Speed 4th rack travel in: 1200 rpm : 0.00...1.40 Speed LOW IDLE 1 Setting point w/out bumper spring **прлі : 300** Rack travel in mm: 6.6 Testing: Speed rpm : 200 Minimum rack trave: 8.50 rpm : 300 Rack travel in mm : 6.30...6.90 Rack travel in mm : 2.00 Speed rpm : 380...420 TORQUE CONTROL Dimension a mm : 0.35 2nd speed rpm : 950 Rack travel in m: 14.90...15.10 3rd speed rpm : 800 Rack travel in m: 15.20...15.40 Aneroid/Altitude Compensator Test 1st version Settina Speed mpm : 500 hPa : 1200 Pressure Rack travel mm : 15.20...15.40 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 10.10...10.40 2nd pressure hPa : 250 Rack travel in m: 10.60...10.70 3rd pressure hPa : 750 Rack travel in m: 13.80...14.00

FUEL DELIVERY CHARACTERISTICS

rpm : 950

Aneroid pressure h: 1200

Del.quantity cm3/: 236.0...239.0 1000 s: (233.0...242.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 134.0...136.0 1000 s: (131.0...139.0) Spread cm3 : 8.00 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.90 Speed rpm : 990...1005

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 40.0...70.0 * 1000 s: (36.0...74.0)

* Set warm-start quantity at excess-fuel stop for starting on governor housing

N25

Speed

1st version

Note remarks

Test sheet

Edition : 26.06.92

Replaces

Test oil : ISO-4113

Combination no. : 0 402 646 922

Injection pump

Pump designation : PE6P120A320LS7834-10

EP type number : 0 412 626 853

Governor

Governor design. : RQ3CO/1050PA972-2

Governer no. : 0 421 801 556

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M401 LA

: 213.0 1st version kW

Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter

x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.50...5.60 Prestroke mm

: (5.45...5.65)

Rack travel in mm : 20.00...21.00 : 6-3-5-2-4-1 Firing order

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 13.70...13.90

Del.quantity cm3/: 20.9...21.1

100 s: (20.6...21.4)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 300.02nd speed Rack travel in mm: 5.9...6.5 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position Degree: -2

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Spread

rpm : 600 Speed Aneroid pressure h: 800

: 209.0...211.0 Del.quantity

1000 : (206.0...214 9)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed : 600 rpm Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.10

rpm : 1090...1105 Speed

2nd rack travel in: 4.00

Speed rpm: 1175...1205 4th rack travel in: 1300

rpm : 0.00...1.50Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 6.2

Testing:

ηom : 200 Speed Minimum rack trave: 8.50

Speed rpm : 300 Rack travel in mm : 6.10...6.30

Rack travel in mm: 2.00

Speed

rom : 380...420

TORQUE CONTROL

Dimension a mm

2nd speed rpm : 1050

Rack travel in m: 14.00...14.20

3rd speed rpm : 800

Rack travel in m: 14.10...14.30

Aneroid/Altitude Compensator Test

1st version

Setting

: 600 Speed rpm hPa : 800 Pressure

: 13.70...13.90 Rack travel mm

Measurement

1/min: 600 Speed

1st pressure hPa : 250

Rack travel in m: 10.30...10.50

2nd pressure hPa : 550

Rack travel in m: 12.90...13.10

3rd pressure hPa : 1100 Rack travel in m: 13.80...14.00 * 4th pressure hPa : 1250

Rack travel in m: 14.10...14.30

5th pressure hPa : -

Rack travel in m: 9.50...9.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500

Speed

: 1050 rom

Del.quantity cm3/: 216.0...219.0

1000 s: (213.0...222.0)

cm3 : 8.00Spread

1000 s: (12.0) Anercid pressure h: 1500 : 800 rpm

Del.quantity cm3/: 219.0...223.0

1000 s: (216.0...226.0)

cm3 : 8.00Spread 1000 s: (12.0)

Aneroid pressure h: -

: 500 Speed rpm

Del.quantity cm3/: 132.0...134.0 1000 s: (129.0...137.0)

cm3 : 8.00Spread

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.10

rpm : 1090...1105 Speed

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm